APRIL, 1956

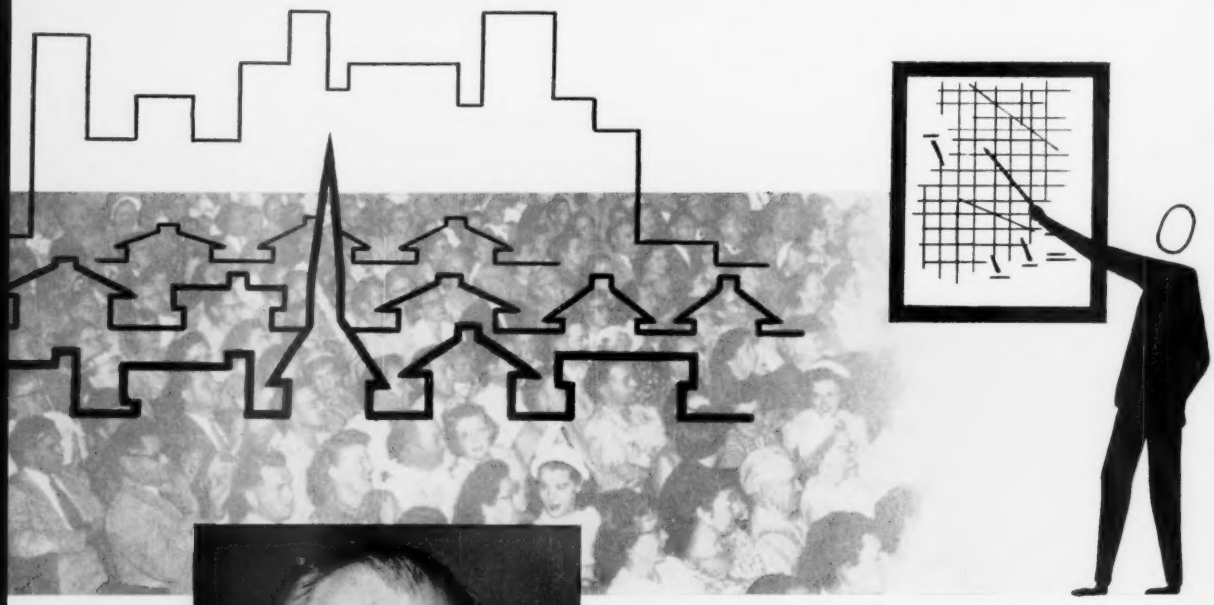
American Engineer

IN THIS ISSUE . . .

The American Community and the "Growth Profession"

By BOYD CAMPBELL

President, Chamber of Commerce of the United States



Mr. Campbell

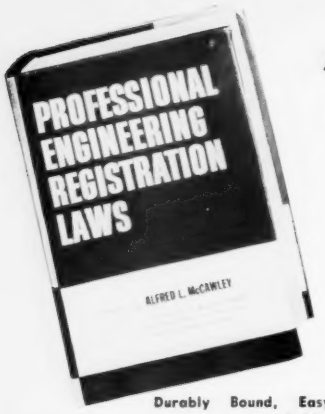
Two Articles on Professional Unity by Engineers N. W. Dougherty and Walter B. Morton

***A New Monthly Newsletter:* Employment Practices Digest**

A Complete Roundup of National Engineers' Week News

EUGENE B POWER
UNIVERSITY MICROFILMS
313 NORTH FIRST ST
ANN ARBOR MICH
COMP T 71555

end the Annual Meeting
Atlantic City
May 24-26, 1956



Durably Bound, Easy-to-read type. A Reference Shelf Buy at $8.75.

A Compendium of Registration Laws for Professional Engineers in the 48 States, Alaska, Hawaii, Puerto Rico, and the District of Columbia . . .

Here is a volume that belongs on the shelf of every professional engineer's reference library or in the hands of the student engineer. Compiled by Alfred L. McCawley, a recognized authority in the field of professional registration, the book presents, state by state, the exact legal requirements that must be met for professional practice. Laws are cited, and much attention is given to details regarding temporary permits, fees and bonds, educational requirements, and many other factors.

ORDER YOURS NOW FROM:

A. L. McCAWLEY
Trustee, Publications Fund
Box 474
Jefferson City, Missouri

(CHECKS MUST BE MADE OUT TO ABOVE)

DOES YOUR FIRM REALLY TRAIN ITS ENGINEERS?

American industry is rapidly becoming a post-graduate school for engineer training. Do you have the facts about this vital development?

"HOW TO TRAIN ENGINEERS IN INDUSTRY" will give you these facts. This is the fourth in a series of executive research survey reports published by the Professional Engineers Conference Board for Industry. It is a broad-gauge report designed to bring nation-wide engineer training problems before you in the clearest possible focus. This survey will show you how your own firm shapes up in the engineer training picture. It has proved an "eye opener" for training directors who thought they knew all the answers.

Prices: $1.00 to NSPE members. $2.00 to non-members.

"A PROFESSIONAL LOOK AT THE ENGINEER IN INDUSTRY"

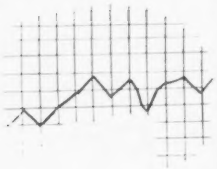
Appearing after more than a year of intensive research and study, this book is a major publication in the engineering-industry field. Brought together in compact form are a wealth of pertinent facts about the background and present situation bearing on the future professional development of engineers employed in all types of industry, and the related effects on all other professional engineers. 128 pages • 6 illustrative charts • 11 tables of economic data • fully documented by more than 250 references • bibliography and index.

Prices: $1.50 to NSPE members. $3.00 to non-members. Orders of over 25 copies: $1.00 per copy to NSPE members, $2.00 per copy to non-members.

Note These Chapter Headings

- The Impact of the Wagner Act
- The Medicine of Taft-Hartley
- Taft-Hartley in Action
- The Causes of Dissatisfaction
- The Influence of Unions
- Professionalism Versus Unionism

HOW MUCH DO ENGINEERS EARN?



The Latest NSPE "Income and Salary Survey" Will Give You the Complete Story . . .

Here it is . . . The most comprehensive and up-to-date information available from any source on the earnings of professional engineers during the past year. Based on information obtained from over 14,000 questionnaires returned from registered professional engineers. Nation-wide in scope, this new "Income and Salary Survey" covers engineers in industry, government, education, private practice, and other categories.

Prices: Only 50c to NSPE members. $1.00 to non-members

Mail This Coupon Today

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
2029 "K" St., N.W.
Washington 6, D. C.

Yes, I am enclosing check or money order for $....., for which please rush the following to me:

..... copies of "How to Train Engineers in Industry" at

..... copies of "A Professional Look" at .....

..... NSPE "Income and Salary Survey" .....

NAME .....

ADDRESS .....

.....

American Engineer

APRIL

1956

Kenneth E. Trombley, Editor

Mary Margaret Milbrath, Assistant to the Editor

NSPE Publications Committee

Vincent F. Waters, P.E., Chairman
William Oliver, P.E.
Walter G. Johnson, P.E.
W. A. Toperzer, P.E.
James A. Rives, P.E.
Charles Doell, P.E.
C. S. Worley, P.E.

N.S.P.E. Officers

Allison C. Neff, P.E., Pres.
Post Office Box 170
Middletown, Ohio

R. J. Rhinehart, P.E., Vice Pres.
Arkansas Power & Light Company
Pine Bluff, Ark.

Louis F. Frazza, P.E., Vice Pres.
225 Bamford Avenue
Hawthorne, N. J.

Virgil E. Gunlock, P.E., Vice Pres.
Post Office Box 3555
Chicago 54, Ill.

Warner Howe, P.E., Vice Pres.
76 Porter Building
Memphis, Tennessee

Lindley R. Durkee, P.E., Vice Pres.
448 Federal Office Bldg.
909 First Avenue
Seattle, Wash.

Garvin H. Dyer, P.E., Vice Pres.
c/o Missouri Water Company
123 West Kansas Street
Independence, Mo.

Clarence T. Shoch, P.E., Past Pres.
901 Hamilton Street
Allentown, Pa.

Russell B. Allen, P.E., Treas.
4610 Hartwick Road
College Park, Md.

Paul H. Robbins, P.E., Ex. Dir.
2029 K St., N.W.
Washington 6, D. C.

"I don't know what your destiny will be, but one thing I know: the only ones among you who will be really happy are those who will have sought and found how to serve."

—ALBERT SCHWEITZER

BPA

Member, Business Publications Audit

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS FOUNDED 1934

SPECIAL ARTICLES

The American Community and the "Growth Profession" 9
By Boyd Campbell, President, Chamber of Commerce of the United States

The Time for Unity Is Now 14
By Walter B. Morton, P.E., Electrical Engineer, Pennsylvania Power and Light Company

A Profession of Diverse Individuals 19
By N. W. Dougherty, P.E., Dean of Engineering, University of Tennessee

NSPE State Presidents Conference, March, 1956 26

National Engineers' Week, 1956 28
A Picture-and-Text Roundup of Coast-to-Coast Highlights

Atlantic City Meeting To Feature Professional Confabs 36

REGULAR FEATURES

Letters 4
Professional News Briefs 6
Engineering Employment Practices Digest 13
(A New Monthly Feature Page)
From Washington 17
NSPE Believes 25
Professional Postscripts 34
Strictly Business 40
With Our Members 41

New Processes 38
Professional Directory 42, 43, 44, 45, 46
Classified 47
New Literature 48 Advertisers' Index 49
What's New—New Products of Interest 50

ADVERTISING INFORMATION:

R. A. Oliver, Advertising Director
American Engineer, 2029 K St., N.W., Washington 6, D. C.
Telephone MEtropolitan 8-6112

NEW YORK:
Austin LeStrange Co., Inc.
420 Lexington Avenue
New York 17, N. Y.
MUrray Hill 5-3277

CHICAGO:
LeStrange Co., Inc.
185 North Wabash Ave.
Chicago 1, Illinois
DEarborn 2-0248

LOS ANGELES:
J. W. Conrow & Co.
1175 Woodbury Rd.
Pasadena, Calif.
SYcamore 7-5365

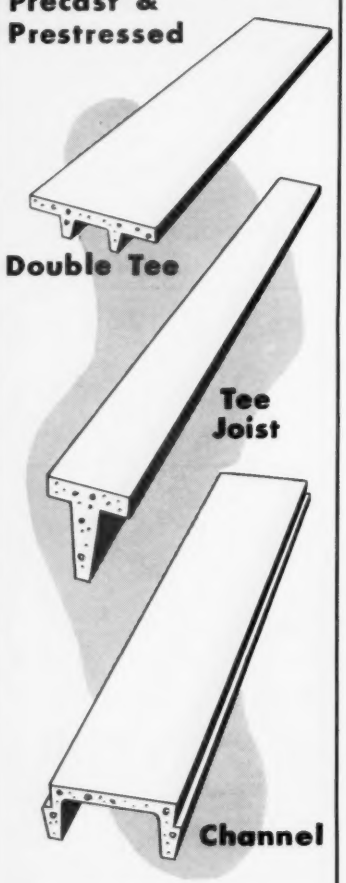
The American Engineer is published monthly by the National Society of Professional Engineers, 2029 K St., N.W., Washington 6, D. C. Entered as Second Class Matter at the Post Office, Washington, D. C., under act of March 3, 1879. Copyright, 1956, by the National Society of Professional Engineers. Not responsible for opinions expressed in signed articles. Subscription Rates: $2 per year in advance to members of NSPE and its Affiliated Societies: $3 per year in advance to non-members in U. S. A. and its possessions, Canada and Mexico. Foreign, $4 per year. Single copy, 35c. Vol. 26, No. 4.

For the BEST in concrete construction

USE

LEAP CONCRETE

Precast & Prestressed



LEAP concrete products are mass produced in long spans to standardized designs in 15 plants throughout the United States, Canada, Hawaii and South America.

Send for table of loadings by filling in the coupon below.

LEAP CONCRETE
P. O. Box 1561
Lakeland, Florida Dept. D-3

Please send me complete details about LEAP Prestressed Concrete.

Name .....

Address .....

City .....

State .....

Letters to the Editor

Less Talk, More Action . . .

Dear Editor:

Much has been said in the last couple of years about the acute shortage of scientists and engineers. The situation has been "viewed with alarm" from Washington right down the line. School curricula, improper use of currently available scientific talent, teacher shortages, and low salaries have been cited as reasons for the shortage. Everyone is aware of the situation but little has been accomplished to solve it.

Admittedly, this is a serious national problem; made up of hundreds of serious local problems. The shortage is just as acute in our city of 60,000 persons as it is in any other area.

A group of men and women in this community, doctors, engineers, chemists, educators, and others, have recognized this need for more scientifically trained people and have joined together to do something about it locally. We started with the premise that our boys and girls, surrounded as they are by all the marvels of our age, have an interest in these things and need only the right spark to set them off on productive careers in the sciences.

We believe they need guidance, counsel, encouragement, opportunity (and sometimes funds) above and beyond that which they receive in their formal schooling. They should be provided with an intimate contact with professional people. They should have a chance to visit laboratories and industrial plants and to learn how the basic fundamentals they study are put to practical use.

Above all, the desire and ability to do outstanding work in school should be placed in its proper perspective in the public mind. Scholastic ability should receive commendation and we should work at least as hard to seek out the good student as we do the good football player.

The Kenosha Science and Engineering Council was organized to seek out the boys and girls who have aptitude and interest in the sciences. Simply stated, the plan is to encourage our young people; to make supplies and equipment available to those who wish to learn by doing; to provide incentives and awards to winners in the annual Science Fair; to point out opportunities in these fields in local industry; to provide work opportunities and scholarship aids to students who wish to further their education; and generally, to maintain an agency through which the collective knowledge and experience of many professional people can be made available to any student who needs counsel.

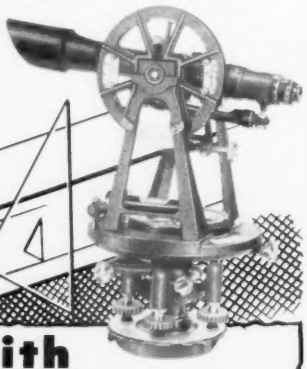
The Council does not plan to solicit funds in the usual way. Any person interested in the program is entitled to a membership for an annual fee of $5.00. Industrial concerns, businesses, and other organizations may secure an annual membership for a fee of $25.00.

It is too early to evaluate the worth of this program. We have aroused, however, an encouraging amount of public enthusiasm; people are talking about it and the membership list is growing satisfactorily.

Our town does not have a copyright to this idea and our purpose in writing this letter is simple. We have progressed beyond the tongue-clucking stage and feel we are performing an important service to our schools, our industries, and our community. We sincerely hope that this letter will generate similar action in many other communities. It is a civic and patriotic project worthy of everyone's consideration.

FRANK I. VILEN, P.E.,
Kenosha, Wisc.

Assure Accuracy Reduce Costs



with

WARREN-KNIGHT TRANSITS & LEVELS

SERVICES FOR THE ENGINEER . .

Special features of design and construction assure the greatest value per dollar of investment. A model for every need — 10 day trial.

- Instruments — New or Rebuilt Engineering Equipment and Supplies
- Rental — Any length of time
- Repairs — Any make
- Assistance — By P.E. in making your selections

Send for free Information AE-64

WARREN-KNIGHT

136 NORTH 12TH STREET PHILADELPHIA 7, PA.

Rhinehart Election Is Confirmed By Tellers Committee

The election of Robert J. Rhinehart of Pine Bluff, Arkansas, as 1956-57 president of the National Society of Professional Engineers has been officially announced following the meeting of the Tellers Committee in Washington, D. C., on March 14.

Other incoming officers, whose election was confirmed with the Tellers' count of the NSPE ballots, are Allan H. Kidder, Warner Howe, Clark A. Dunn, Lindley R. Durkee, Garvin H. Dyer, and Harry G. Kennedy—all vice presidents-elect, and Russell B. Allen, who will serve a ninth term as treasurer. Mr. Howe, Mr. Durkee, and Mr. Dyer are also currently serving vice presidential terms, as is Mr. Rhinehart.

Members of the Tellers' Committee are Herbert Manuccia, chairman, and Leroy F. Deming, Harry W. Dannetell, Jr., Michael M. Abrams, and Richard E. Morris. All belong to the District of Columbia SPE.

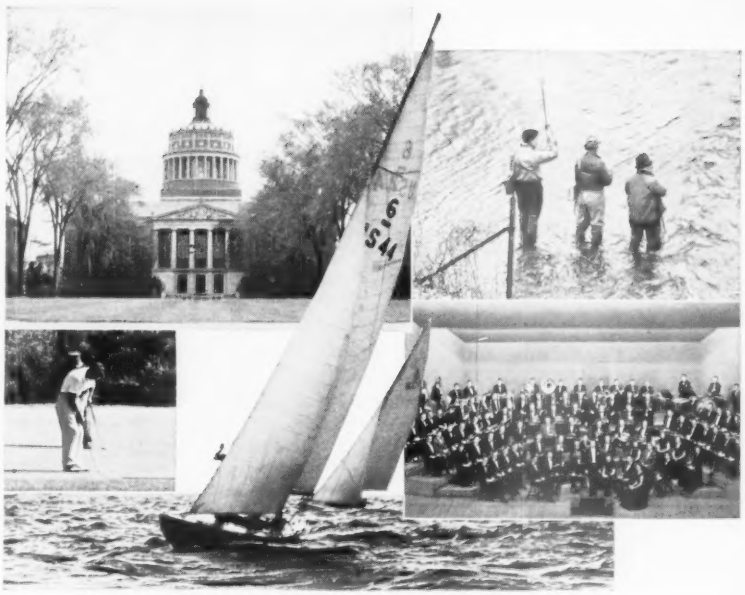
NSPE Representatives At AAAS Meeting

In one of its first cooperative actions since election to the American Association for the Advancement of Science, NSPE sent three representatives to the March 6th meeting in New York City of Section M (the Engineering Section) of AAAS.

Those attending were Paul H. Robbins, NSPE's executive director; A. H. Kidder of Philadelphia, vice president-elect of the Society, and R. L. Sweigert, dean of the Graduate Division of the Georgia Institute of Technology.

P. H. Robbins Keeps Speaking Engagements

NSPE's executive director, Paul H. Robbins, followed a busy schedule of speaking engagements during March. Among the presentations he made were speeches before the Sussex Engineering Society in Seaford, Delaware, on March 12, the annual meeting of the American Society of Tool Engineers at the Palmer House in Chicago on March 20, and the joint meeting of the North Shore Chapter of the Massachusetts Society of Professional Engineers and the Lynn Association of General Electric Engineers in Lynn, Massachusetts, on March 29.



A land with a climate where your *ideas* can *grow*

You begin to hunt for such a climate when you see your ideas stagnating in the airless confines of a company too small—or lost in the bog of one that's too big.

You promise yourself it's climate you'll look at, *this* time when you pick a job. *Management* climate—because that's where ideas find sunshine—not the big freeze.

So you look for a company where Management recognizes a hot idea when it comes up from the lab. You look for a company where Sales knows how to take hold of a good idea and move. You search for a department without pigeon holes; you want to work, not roost.

That's why Stromberg-Carlson's story should appeal to you. Since World War II our volume has increased 16 times, thanks to good ideas accepted and promptly applied. Recently we joined the headline-making General Dynamics Corporation, making the ionosphere the limit on your future here.

As two or three generations of Stromberg-Carlson's engineers can tell you, the climate in this scientific-industrial city of Rochester seems to stimulate live minds. You meet next-door neighbors who know what you're talking about. You enjoy winter sports, summer boating, good music, fresh theater—and a salary-bonus plan that lets the good way of living be yours. It should be, when you choose a *lifetime* job.

The list below shows where there's room for you and your ideas to grow. Dig in now—with a detailed letter to Mr. Howard L. Foote, at the address below. We think you'll like what he has to say to you.

RESEARCH: Communication and Data Systems • Information Theory • Semi-Conductor • Digital Techniques • Servo Mechanisms • Electronic Switching • Acoustic Transducers • Magnetic Amplifiers • Nucleonics • Microwave.

ELECTRONICS: Radio Communications • Mechanical Design Engineering • Infrared • Automatic Test Systems • Countermeasures • Navigational Systems • Radar • Computer Techniques • Military Transistor Applications • Missile Guidance Systems • Microwave Development.

AUTOMATION: Systems Engineering • Automatic Assembly • Transistors • Amplifiers & Filters • Automatic Test Equipment • Numerical Control • Computers • Counters • Instrument and Power Servos • Production Engineers.

WIRE COMMUNICATION: Dial Central Office Equipment • Telephone Instruments • Wireline Carrier • Frequency Multiplex • Toll Ticketing • Transistor Circuitry • Microwave Links • Electro-mechanical Design • Electronic Switching Systems.

AUDIO-ACOUSTICAL: Transformers • Tape Recorders • Audio Amplifiers • Loudspeakers • Electronic Carillons • Intercommunication Systems • Auto Radio • Home Radio • High Fidelity • Sonar.

STROMBERG-CARLSON COMPANY S-C
A DIVISION OF GENERAL DYNAMICS CORPORATION

ROCHESTER 3, N. Y. • Plants at Rochester, N. Y., Los Angeles, Calif., and San Diego, Calif.

PROFESSIONAL NEWS IN CAPSULE FORM

A Roundup of Late Events for Professional Engineers

Superior Students Do Seek Science Study

The National Merit Scholarship Corporation has recently asserted that a high percentage of the Nation's most gifted high school students do plan to pursue careers in science or engineering.

The NMSC, the country's largest scholarship organization, bases its assertion on the results of a survey made among 5,078 semifinalists in the scholarship competition it has been conducting among 60,000 high school seniors. The survey showed, it was stated, that 56 per cent of the boys and 16 per cent of the girls want to become engineers or scientists. Also, 36 per cent of the girls want to become teachers. The next most popular field was medicine and other health pursuits, favored by 10 per cent of both boys and girls.

The NMSC, which will award $3 million worth of scholarships to qualified students this spring, was established last fall with grants from various foundations interested in raising the Nation's educational standards and seeing that superior students have the chance to train for the professional careers for which their talents qualify them.

Why Jim Davis Picked RED GIANT HAND LIFT TRUCKS
BOY-THESE RED GIANTS SURE HANDLE WELL!
I'LL SAY! AND THESE TIMKEN ROLLER BEARINGS ARE SEALED AND LUBRICATED FOR LIFE! AND THE HANDLE CAN'T KICK WHEN LIFTING OR LOWERING LOAD!
AND LOOK AT THIS RELEASE CHECK-IT'S A REAL SHOCK ABSORBER TO PROTECT EVEN THE MOST FRAGILE CARGO! I CHECKED THEM ALL, AND RED GIANT HAS THEM ALL BEATEN!
WRITE IN FOR OUR FREE COMPLETE TRUCK INDEX OF RED GIANT MODELS IN OVER 600 COMBINATIONS OF SIZES AND CAPACITIES!
REVOLVATOR CO.
8782 TONNELLE AVE. NORTH BERGEN, N. J.

Military Engineers Nominate General Newman

Major General James B. Newman, U. S. Air Force, ret., has been nominated for president of The Society of American Military Engineers, according to an announcement by Rear Admiral Joseph F. Jelley, CEC, U. S. Navy, current president of the 26,000-member organization.

Weber Is Acting President Of Georgia Tech

Dr. Paul Weber, dean of faculties at the Georgia Institute of Technology, has been named acting president by the Board of Regents of the University System of Georgia, pending the appointment of a successor to the late Dr. Blake R. Van Leer, who died on January 23.

"Too radical, Boss?"

Engineering Centennial At Missouri

The University of Missouri's College of Engineering is observing its centennial during 1956. A special two-day centennial celebration program was held at the school on March 16 and 17.

Speakers for the event included A. A. Kucher, director of the Scientific Laboratory, Ford Motor Company; C. Y. Thomas, vice president, Spencer Chemical Company, and a former NSPE vice president; O. B. Falls, manager of marketing of atomic power equipment, General Electric Company; Eugene J. McNeely, vice president, American Telephone and Telegraph Company; and Wilbert G. Fritz, consultant to the Office of Defense Mobilization.

Glider
BLUE PRINT RACK

Patents Pending

5 Ft. Hi., 4 Ft. Wd., 3 Ft. Dp.

$94.50 F.O.B. Chicago, Ill.

per Unit including 12 Plan Holders

20 Exclusive Features including

- No Holes to Punch . . . Replace Any Sheet without removing other sheets.
- Just Glide In . . . Glide Out.
- Holds Various Sizes of Prints and Thicknesses of Sets
- Can Hold as Many as 1500 Prints
- PLUS 16 MORE FEATURES

Order Your Glider Blue Print Rack Today or Write for Illustrated Brochure

MOMAR INDUSTRIES
4323 W. 32nd St., Chicago 23, Ill.

A symposium on "Transportation of the Future" was another highlight of the observance. Numerous industrial exhibits were also displayed on the campus during the two-day program.

Cornell Seminars Planned

The annual Cornell University Industrial Engineering Seminars have been scheduled for June 12 through June 15, according to an announcement from the Ithaca, New York, school.

The seminar workshops will cover the following six areas: industrial management, manufacturing engineering, small plant management, methods engineering, applied industrial statistics, and industrial marketing. There will also be several general sessions. Specialists from industry as well as from the staff of the Cornell College of Engineering will take part in the program.

The seminars are intended to provide an opportunity for critical study and reappraisal of some of the major problems of manufacturing planning and control.

Full information is available from Andrew Schultz, Jr., Department of Industrial and Engineering Administration, Cornell University, Ithaca, N. Y.

Kerekes Heads Amer. Concrete Institute

Frank Kerekes, dean of the faculty, Michigan College of Mining and Technology, Houghton, Michigan, has been elected president of the American Concrete Institute, succeeding Charles S. Whitney, a partner in Ammann and Whitney, New York and Milwaukee consultants.

Dean Kerekes, who is also a member of the National Society of Professional Engineers, has spent a lifetime's career in engineering education.

Robbins Named To "Who's Who" Committee

NSPE's executive director, Paul H. Robbins, has been named to the advisory committee which will guide the preparation of the eighth edition of *Who's Who in Engineering*. Mr. Robbins has also served on the advisory committees concerned with the publication of previous editions of the reference volume.

leading a dog's life?

Well, then, this might be a good time to get out of the dog house and on your way to a big career at Fairchild to assist in the engineering of several airplane prototypes now scheduled.

Investigate the list of categories below. See where you fit in.

Aircraft Engineers with supervisory experience in one or more of these positions:

- Design Project Engineers
- Design Coordinators
- Design Engineers for Sheet Metal Structure, Hydraulic Systems, Landing Gears, Control Systems, Equipment and Furnishings, Electrical and Electronics Installations, Power Plant Installations
- Stress Engineers for both Sheet Metal Structures and Mechanical Systems
- Weight Control

Layout Designers and Draftsmen

Project Coordinators and Administrators

You'll like working at Fairchild, and you'll like living in Hagerstown, Maryland—excellent housing, schools, recreational facilities . . . close to urban Baltimore and Washington.

Send your resume today to Lou Fahnestock, Director of Engineering.

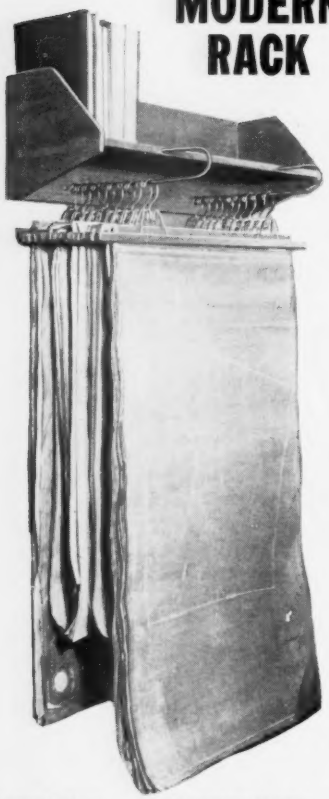
A Division of Fairchild Engine and Airplane Corporation

. . . WHERE THE FUTURE IS MEASURED IN LIGHT-YEARS!

FAIRCHILD

AIRCRAFT DIVISION • HAGERSTOWN, MARYLAND

MODERNIZE BLUEPRINT FILING WITH THIS MODERN RACK



SIMPLE . . . COMPACT . . .

- **NO HOLES TO PUNCH**
- **NO NUTS TO FASTEN**

Mounts on any wall leaving floor clear, overall size 36" long 18" wide and 12" high. To insert plans or additional sheets simply open and close clamps. Equipped with 10 plan holders. Holds up to 15 sets of largest plans. Order the MODERN blue print rack today and solve your blue print filing problems forever.

ENGINEERING PRODUCTS

101 Kings Highway Haddonfield, N. J.

Please ship me the MODERN blue print rack with 10 plan holders @ $58.50 complete. Extra plan holders $3.50 each.

Name .....

Street .....

City ..... Zone .....

State .....

Haxby Is Elected by National Constructors

C. D. Haxby, vice president of The Rust Engineering Company, Pittsburgh, has been elected president of the National Constructors Association for 1956. He succeeds T. C. Williams, president of Stone & Webster Engineering Corporation, New York, in the post.

The National Constructors Association is an organization of engineering and building firms engaged in the design and construction of petroleum refineries, steel mills, chemical plants, and other industrial facilities.

Nevada Legislature Urges Science Study

Both houses of the Nevada Legislature have recently passed a resolution urging that increased attention be given to encouraging young people in the secondary schools of the State to study courses that will prepare them for careers in science and engineering. The resolution was predicated on the need for more engineers and scientists so that the United States may maintain its technological strength.

More Technicians To Be Available

There is a brighter outlook forecast in regard to the number of technicians who will be available to support the work of engineers and scientists in coming months. Technical institutes will graduate approximately 14,000 trained technicians this year, according to reports. The number of full-time students at such institutes rose 24.3 per cent in 1955, and it is expected that enrollments will continue to rise.

Wisconsin U. Plans Gifted Student Search

A long-range research program designed to discover high school students of superior ability at an early stage in their educational careers is being launched this year by the Engineering Experiment Station of the University of Wisconsin's College of Engineering.

The project, which will require at least five years for its initial period, was announced by Dean Kurt F. Wendt of the College.

(Continued on page 27)

Up to $15,000 to the creative engineering minds who can fill these positions

Project leader in...

FIRE CONTROL—
technically direct a major Radar Fire Control project.

DATA PROCESSING—
supervise projects involving radar video processing equipment (analog and digital).

•

Join stimulating associates already in this highly advanced field with an electronics pioneer.

•

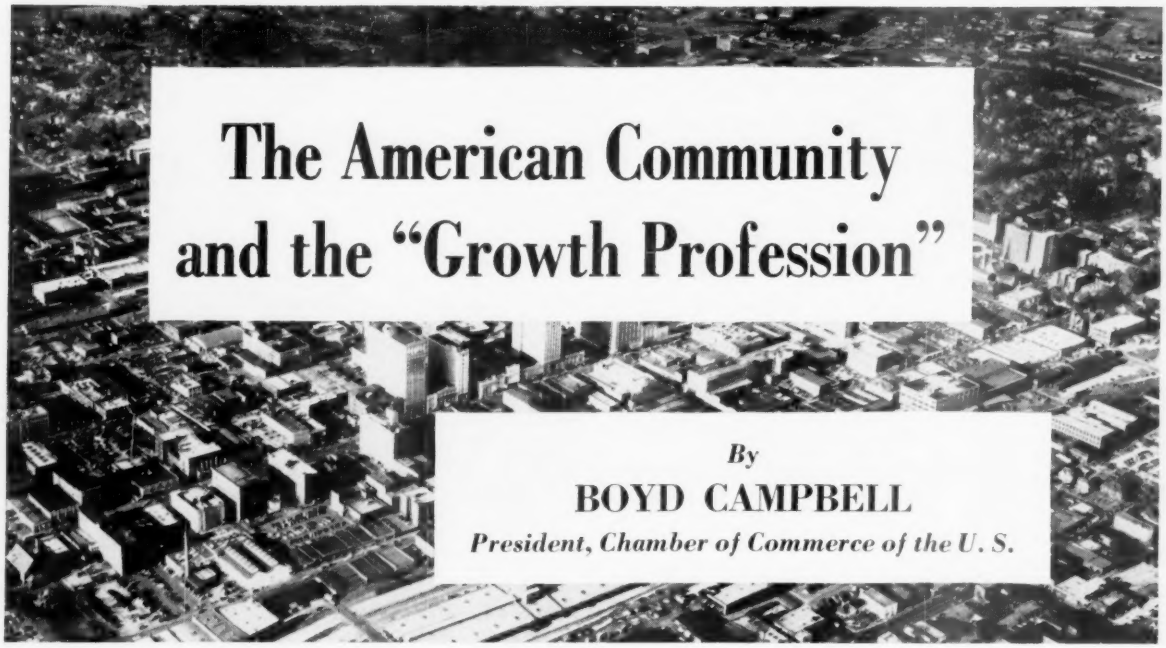
***To arrange confidential interview, send resume to Box 401, AMERICAN ENGINEER.**

•

American Engineer

The Magazine of the Registered Professional Engineer

VOLUME TWENTY-SIX NUMBER FOUR



The American Community and the "Growth Profession"

By

BOYD CAMPBELL

President, Chamber of Commerce of the U. S.

First, let me qualify myself. Disqualify might be a better word. I am not an engineer. When it comes to engineering, I am strictly a sidewalk superintendent, and I am happy to observe that more and more construction engineers are leaving open spaces in the high board fences which they build around their operations.

This not only eliminates the frustrating problem of trying to find an unoccupied knothole, but also permits us sidewalk superintendents to pursue our cultural avocation with some semblance of dignity.

All of which is to say that I have a typical layman's attitude toward the entire engineering profession. My whole concept of the engineer's functions, duties and obligations is that of a layman, and could be nothing more.

You will, therefore, please be assured that this is not written with any intent to tell you how to run your affairs. It is from the perspective of a non-engineer that I attempt to define what your relationship to the community might well be. Whatever my effort lacks in wisdom will, I hope, be offset by sincerity. By such a yardstick I ask that you measure my comments.

Since the time they built the pyramids in ancient Egypt and probably for many years before that, the engineer has been set apart from his fellow men—and by his fellow men—in sort of a charmed circle to which there is no admission except for those possessed of highly specialized skills and unusual talent. Whether you like it or not, the community insists that you are something different, something special. The importance of this fact cannot be overemphasized.

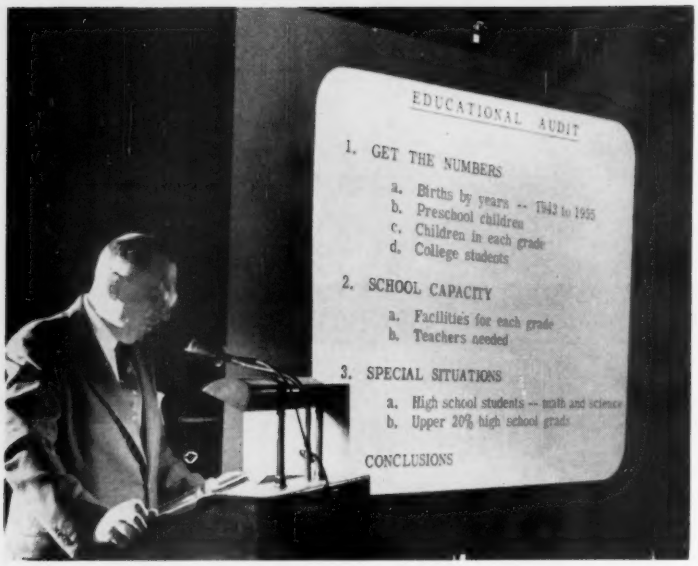
If you are inclined to doubt that you have been placed in a charmed circle, you are blind to the facts. Furthermore you are unaware of the deep obligation which such a distinction implies. Whether or not you regard yourselves as being different, we laymen traditionally insist that you are. We will continue to do so until you fail to measure up to the mark we have set for you.

There is so much evidence, that the fact of your charmed circle dwelling place is inescapable. The layman's attitude is strikingly reflected in our magazine stories, novels, motion pictures and radio and television plays. The engineer is frequently the hero of the plot. But how often is an engineer cast in the role of the villain? I cannot recall a single instance. Of course there may have been such plots, but the preponderance of hero engineers is overwhelming.

It might be that this national respect for the engineering profession results from the fact that the most important man in our history—George Washington—was, in effect, a civil engineer, even though he attended no classes in engineering except in the school of experience.

Why do we laymen insist that you are set apart?

Because you are in a position of unusual responsibility. In this era of rapid technological advancement, the engi-


EDUCATIONAL AUDIT
1. GET THE NUMBERS
a. Births by years -- 1942 to 1955
b. Preschool children
c. Children in each grade
d. College students
2. SCHOOL CAPACITY
a. Facilities for each grade
b. Teachers needed
3. SPECIAL SITUATIONS
a. High school students -- math and science
b. Upper 20% high school grads
CONCLUSIONS

Here Mr. T. A. Abbott, manager of Research Engineering at Standard Oil of Indiana speaks before the Wisconsin SPE and cautions that many pupils are lost to the engineering profession because they are ill-advised in their high school courses. Professional engineers can perform a great service to the community and the nation in the student guidance field.

neer, to an ever increasing degree, is shaping the daily lives of all of us and controlling the ultimate destiny of mankind.

Why do we insist that you are different? Because it is common knowledge today that we do not have enough engineers to go around, and because your profession is so highly specialized. Some of the simplest terms that you employ in ordinary shop talk sound like so much Sanskrit to us laymen.

And finally we think that you are different because we all know that as we plunge deeper and deeper into the mysteries of electronics, mechanics and nuclear fission, it becomes evident that the aspirations of the civilized world will be realized only if our engineers are possessed of a strong social conscience along with their technical learning.

I have implied and I now assert that because you live in a charmed circle, you have a special obligation of leadership, and to emphasize that point I suggest that a highly skilled engineer without a sense of social responsibility or loyalty could be the most dangerous man on earth. We laymen not only depend upon you; we trust you.

This brings me directly to my subject—the engineer and the community.

What is a community? Actually, we have several kinds of communities. One is composed of your house and all the other houses within two or three blocks in all four directions. Another kind of community is a suburb. Still another is the small town. But so is the big city a community within itself. So is a state a community unto itself, and in addition to all these, we have the larger community of the nation as a whole.

But the community of which I am thinking is any community. It is, more specifically, your community, your home town—the place where you live—where you work—and the one place in all the world where you can best keep your social conscience in running order, not only for the well-being of your fellow man, but for the inner satisfaction that will accrue to you.

So I am going to suggest that if you would dwell in a charmed circle in these times especially, you must be salesmen. Perhaps that may strike you as rather odd. But what is salesmanship?

SALESMANSHIP is leadership. Salesmanship contemplates a knowledge of the product or of the service, a knowledge

Engineers build and destroy for progress! Here the Third Avenue Elevated in New York City, once a source of community pride, is coming down to make room for better methods of transportation.

Many professional engineers across the nation devote free time to the improvement of the areas in which they live. Helping the city fathers with flood control, air pollution problems, and building codes are just a few of the paths to service.

of people and a knowledge of the application of the product or the service to their needs and desires. Salesmanship is sincerity. It is self-confidence. It is articulateness. It is persuasiveness. It is vision. It is courage.

What is your product? Your skills. Who are your customers? Those who engage your services, yes; but you have other customers in the form of youthful prospects for recruitment into your profession. Look at the international scene which, as you know, is fraught with tension.

Russia is complacently announcing that she will graduate 50,000 engineers this year. Russia doesn't have to talk young men and women into scientific careers. She drafts them and runs them through an academic assembly line. This would never do with us, so we must sell the idea of the scientific education.

Who is going to sell it except you as individual salesmen in your own communities, working with the young people you know? Salesmanship means talking to people. Silence is no longer considered wisdom. It is considered for exactly what it is. If you would be a leader, you must know how to talk to individuals and to groups. If you are to assume the stature that your charmed-circle status implies, you must learn to express yourself with clarity and conviction.

Your community thinks of your profession in terms of you, just as we are all inclined to think of the medical profession in terms of our family doctors—or the newspaper profession in terms of the local editor.

Does your profession ever talk in terms of more lofty purposes than spanning gorges or exploring the interior of a mountain? I am sure it does. I know it does. So if you would continue to dwell in a charmed circle, you must be a teacher who can talk of ideals as well as blueprints and formulas. The community is your school.

Men in all walks of life today want to know more about professional engineers and professional engineering. Because they are aware of the impact of your work on their lives, they are hungry for this knowledge—if you can tell it to them in the kind of language they will understand.

You will have no trouble finding forums. Your local Chamber of Commerce is one of them. Your service clubs, the men's clubs of your church, your garden societies, your Parent-Teacher Associations are others.

Every community is brimming over with opportunities for the men of the charmed circle to address them—or to work with them.

Every community today needs engineering counsel as it never needed it before.

Community development does not come about by chance. Cities are built where men build them. Community devel-

As one of its many activities, the Chamber of Commerce of the United States carries on a continuous, intensive campaign to help local communities combat urban blight and plan for future growth. The National Chamber conducts Urban Development Conferences in cities throughout the country to give local business and professional people an opportunity to discuss community improvement, to get new ideas and see new possibilities. Shown here is such a conference held recently in Tacoma, Washington. Business and civic leaders from fifteen cities of the Northwest attended.

Mayor Luther Kniffen of Wilkes-Barre, Pa., proclaims National Engineers' Week, 1956.

The mayor in proclaiming the week said, "Wilkes-Barre is at the threshold of a new era in industrial development and progress and we are looking to our engineers to design and build for our future."

Shown with the mayor is a group of registered professional engineers from the Northeast Chapter of the Pennsylvania Society of Professional Engineers.

opment is the result of the price that the most enlightened spirits pay in long hours of thought, study, research and work for what is best. What is best may not be a factory or a new payroll. It may be better health, better housing and better education. Whatever it is, someone must take the lead.

Today, no one can lead better or farther than the engineer. And when he does take the lead, he is not only being a good engineer but also a socially-conscious citizen. He is exalting the American tradition.

SUPPOSE your community is engaged right now in an industrial development program. If so, it needs you. Who else can evaluate the technical problems that are apt to arise in appraising the resources of the community which is trying to attract a new industry?

Industrial prospects are inclined to ask direct and blunt questions: What about water? What about minerals? What about sewage? What about power supply? What about this? What about that?

As a layman, I realize that cities usually have full-time engineers as staff officers of the city government. But isn't it altogether probable that in thousands of cases, the community needs more engineering counsel than it can possibly afford?

In other words, you may find yourselves working for nothing. What is so bad about that?

If you would dwell in a charmed circle, you must voluntarily associate yourselves with others of like mind for the promotion of the common good. Thus it is that chambers of commerce, community chests and a score of character-building and welfare groups come into existence.

They are part and parcel of American life. They lift the level of living not only through the effective performance of their special functions, but through the very effort that is required to finance and implement them. Such efforts are the best possible examples of community cooperation, the fruits of which are civic pride and well-ordered living.

You in engineering have a vital stake in this country, because your opportunities are "on the up." They are expanding every day. Your profession might rightfully be termed a "growth profession," just as we speak of a "growth business"—like color television.

Because of that and other reasons that have lifted you to eminence in the charmed circle, your fellow citizens expect the leadership that only you can provide. It is not only good public relations for your profession. It is the fulfillment of a great moral principle.

The last and probably the most serious responsibility relates to and undergirds all the others. I refer to the stewardship of righteousness. If you would dwell in a charmed circle, you must assume your share of the responsibility for the spiritual atmosphere of the community.

This is no new concept. It has always been with us. American freedom is a spiritual tradition. It has been sustained not alone by economic and political systems, but by God Himself working through the hearts of men.

TODAY (and I think I can say this without exaggeration) American businessmen, as a group, are providing leadership in the realm of moral principle. They are resolutely bringing our economic life under the discipline of enlightened conscience. With profound purpose, they are emphasizing spiritual values in all of our relationships.

In the atmosphere thus created, it is possible to live and work in a partnership of good will toward the goal of a better tomorrow. In the pursuit of such a goal, your very special kind of leadership will meet its most stimulating challenge and its most rewarding opportunity. You are professional people, to be sure, but you are also businessmen. And you have so much to give.

You are, in a manner of speaking, the custodians of the future. We all know that it lies within your power to make a better life for all of us, and that is why you are encircled with a golden cord of hope and confidence—a cord which comprises the strands of respect for your genius, faith in your integrity and reliance upon your leadership.—***End.***

Mr. Campbell

About the Author . . .

Boyd Campbell of Jackson, Mississippi, current president of the Chamber of Commerce of the United States, has followed a career in education and in business. He is a graduate of Millsaps College in Jackson, from which he has also received an honorary Doctor of Laws degree.

He served as a principal in the Mississippi school system. In 1919, he organized the firm which he still heads—the Mississippi School Supply Company—and which has also become the parent firm of office equipment and printing concerns in six Mississippi towns; The School Book Supply Company; the Mississippi Corporation, a financing company; and the Magnolia State Foundation, a charitable organization.

Engineering Employment Practices

Digest

A short digest of a monthly bulletin published by the National Society of Professional Engineers in the interest of advancing cooperative relations between professional engineers and their employers. To regularly receive the complete publication which is distributed widely to industrial, commercial and educational organizations, write the NSPE, 2029 K St., N.W., Washington 6, D. C.

✓ **An opening statement about the purpose of the new NSPE monthly publication by President Neff declares that NSPE "has long attempted to establish the spirit which recognizes the legitimate aspirations and interests of professional engineers and their employers—the spirit of cooperation and mutuality of interest." The newsletter, according to President Neff's statement, will cover NLRB and court decisions; new publications; studies and reports dealing with the problems of employed engineers; comments by informed persons in the employee relations field; news and editorial opinions from reputable journals; society policies; economic data, etc. "This new service of NSPE has as its ultimate purpose a further contribution toward the advancement of the engineering profession and the continued progress of American industry and the other employers of engineers," the NSPE president said.**

✓ The National Labor Relations Board has now decided that professional employees represented by a heterogeneous union may not secure a decertification election limited to professionals in the collective bargaining unit. This reverses a long-standing interpretation of the Taft-Hartley law by the NLRB. The new policy was protested by NSPE; and the full membership of the NLRB, on the basis of the protest considered the policy in a new case, just decided. However, the Board is standing by its decision that the law does not require a separate election for professionals in a decertification proceeding, and that policy considerations do not justify continuing the old rule first enunciated in 1948. Remedial action to protect the interest of professional employees is now possible only through court reversal of the NLRB or further amendment of the labor law.

✓ *Attention is called to the article in the March, 1956, issue,* AMERICAN ENGINEER, *by Herbert R. Northrup, dealing with personnel problems of engineers. Northrup says that proper selection is important, that the lag in salaries for experienced engineers compared to starting rates needs consideration, and that professional employees should be treated as members of the management team, and as members of a profession. Attention is also called to the availability of reprints of an earlier article in the same series, "Professionalism in Industry: The Dow Story," by H. P. Cooper, P.E. The latter article has been reprinted and received wide circulation.*

✓ **A federal district court in New York has ruled that the Western Electric engineering union is entitled to a hearing on a claim for damages for alleged breach of the collective bargaining contract by the company. The company has appealed the decision. The contract on which the suit is based has now expired. The dispute involves the union's contention that the company hired or transferred employees into occupational classifications covered by the contract who did not meet the professional qualifications defined in the Taft-Hartley Act. An NSPE report on the case said that only a court could determine the professional composition and level of the group in 1952, when the NLRB decision was issued, and upon which rests the question of whether the new employees were below the level of the union at that time.**

The Time for Unity Is Now

By Walter B. Morton, P.E.*

Electrical Engineer,
Pennsylvania Power & Light Co.

Editor's Note: ***This article is presented in the interests of keeping the membership informed of recent developments in the unity field. It is stressed, however, that publication of this piece does not necessarily constitute an endorsement by the NSPE of the thoughts presented or the conclusions drawn.***

THIS discussion is a digested adaptation of a lengthier paper, "The Struggle for Unity," that appeared in *Electrical Engineering* Magazine in October, 1955. It is reproduced here to provide broader coverage of the engineering profession, to give our NSPE membership some facts about the unity situation, and to present a plan for complete unity that appears worthy of our thoughtful consideration.

The need for greater unity in the engineering profession has been discussed at such great length that we can begin this discussion with the problem of its accomplishment rather than its need. Many engineers today look hopefully toward a solution of this problem which has been so effectively solved by the legal and medical professions.

These two professions recognized early that a requisite to complete unity is professional recognition; that to obtain that recognition, every practicing member of their profession must be legally registered. Lack of universal registration has hampered the efforts of engineers to effect recognition of engineering as a learned profession and the accomplishment of unity in the profession.

Admittedly the medical profession does not have the type of unity organization desired by many of its members. True, there are dissenting opinions within the AMA, and many practicing physicians do not belong to the organization. However, the AMA is a real unity organzation and speaks with full authority for all medical practitioners on all medical matters, whether "technical" or professional, that affect public health and welfare.

Frequently articles appear with the notation below the article caption "Approved for Publication by the AMA." This is not an autocratic approval, but an endorsement desired by the author. In the minds of laymen and professional men alike, this stamps the article with authenticity, clothes the subject matter with concurrence of the medical profession, and concedes to the author a voice of authority.

Although there have been limited steps toward unification (formation of Engineers' Council for Professional Development and National Society of Professional Engineers, for example) the nearest approach to representation of a large segment of the engineering profession was the advent of Engineers Joint Council. EJC was formed in 1941 as a council of presidents and secretaries of the four Founder Societies: AIEE, ASME, ASCE, and AIMME, later joined in 1942 by AIChE.

The Exploratory Group

To study means of accomplishing a unity organization, in 1949 a committee of EJC on Increased Unity Within the Engineering Profession formed the Exploratory Group, consisting of representatives from 15 national societies (including NSPE) to present a plan for unity acceptable to the engineering profession. Four plans as outlined below were presented. *See Figure One.*

A. *EJC Plan*—Expand EJC to include additional engineering societies. Individuals would have no direct representation but would have automatic membership in the unity organization by virtue of being members of the component societies.

B. *Modified EJC Plan*—Expand EJC to include additional engineering societies and also provide for voluntary individual membership. With this plan, individuals of high qualifications as engineers could become members of the unity organization whether or not they were members of the constituent societies. (An alternate form of Plan B would require these individual members to be members of technical societies also.)

C. *Merger Plan*—This plan contemplated the merger of EJC and of National Society of Professional Engineers (NSPE) into a single body and the expansion of the merged organization in the ways necessary to enable it to represent the entire engineering profession. Individuals meeting basic membership grade recommended by ECPD would be eligible for membership in the unity organization.

D. *NSPE Plan*—This plan proposed adoption of NSPE as the unity organization with an expansion of its membership and activities with the cooperation of other engineering societies.

*At this writing, AIEE Representative on Executive Committee of Engineers Joint Council.

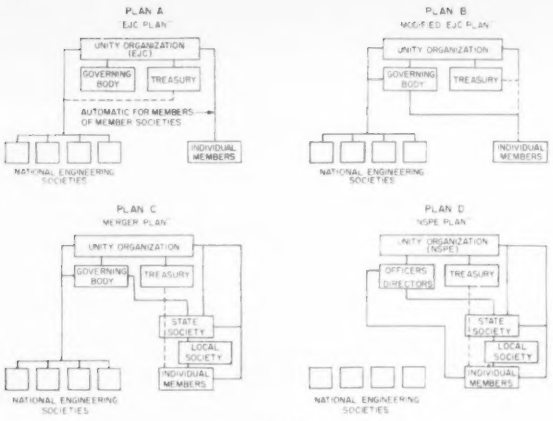


Fig. 1

Although the Exploratory Group did not mention a specific plan in its recommendations, it did recommend that EJC be set up as the unity organization, and pointed out the desirability of having some form of individual membership in any unity organization.

THUS, the equivalent of Plan A was adopted without individual membership in order that, as recommended by the Exploratory Group, "the unity organization be launched in the simplest possible way," but with the understanding that efforts would be made by the new unity organization to effect an acceptable plan for such individual membership. These efforts have been sincerely made, but general agreements within EJC on an individual membership plan have not been forthcoming and EJC remains a federation of societies, the form in which it was started.

Expansion of EJC

After acceptance as the unity organization, EJC modified its constitution (it then comprised only AIEE, ASME, ASCE, AIMME, and AIChE) to permit extension of invitations to additional societies to join EJC, and at the same time, provide for representation from the constituent societies proportional to membership of the societies.

Invitations were extended on December 31, 1952, to eight additional societies to join EJC. Of these eight, three accepted the invitation and are now active members of EJC. They are: American Society for Engineering Education, American Water Works Association, and Society of Naval Architects and Marine Engineers. Two societies rejected the invitation: Institute of Radio Engineers (IRE) and NSPE. Three additional societies allowed the time limit of December 31, 1953, to expire without accepting the invitation. These three were: American Association of Engineers, American Society of Heating and Ventilating Engineers,* and Institute of Aeronautical Sciences.

Recently, two additional societies have been accepted for membership in EJC. They are: American Society of Refrigerating Engineers (constituent member), American Institute of Industrial Engineers** (associate member). Applications from a number of other societies are pending. Thus, the total membership of EJC is now ten societies, nine constituent members and one associate member. *(As of January 1, 1956, see Figure Two.)* Representation on the EJC Board of Directors from the constituent societies is based on numerical society membership. Each constituent society having 15,000 or fewer members is entitled to one representative on the Board of Directors. Societies with over 15,000 membership are entitled to one member for each 10,000 or fraction thereof over the 15,000. There is one alternate for each representative. The president of each constituent society is an ex-officio member of EJC Board, without vote.

*Now "American Society of Heating and Air Conditioning Engineers."

**Societies meeting requirements for constituent member, but with membership of less than 5,000 are admitted as associate members. Societies local in character otherwise meeting requirements for constituent members are admitted as affiliate members (minimum of 500 members).

Weakness of EJC

Despite its accomplishments, EJC has the weakness inherent in any federation type of organization. Areas of interest of the technical societies are restricted constitutionally or by natural bent, with sharp focus on technology. The federation of these technical societies can be only partially more effective than the individual technical societies in its structure. Actions within EJC must be referred back to the constituent societies' boards for concurrence before action is taken. A true unity organization should be completely informed of the wants of the individual members and should provide for effective action consistent with the desires of these members, but without necessity for referral to the constituent societies' boards.

It would seem increasingly evident that the federation type of council, such as EJC is developing into, can never truly represent the entire engineering profession adequately. It still appears that the basic requirement for any unity organization is one that has provisions for individual membership, is adequately financed, and is clothed with the power to act when necessary. It still appears that a closer and more direct line of communication with the grass-roots local sections or chapters, and with the individual members is essential where professional matters are concerned. Despite all this, EJC has a record of major accomplishments in the field of unity and until some other form of comprehensive unity society is formed, EJC should be supported in its work by the members of its constituent societies.

THE membership of the fifteen engineering societies as of May, 1955, represented by the original Exploratory Group concerned with the unity problem is shown in *Fig-*

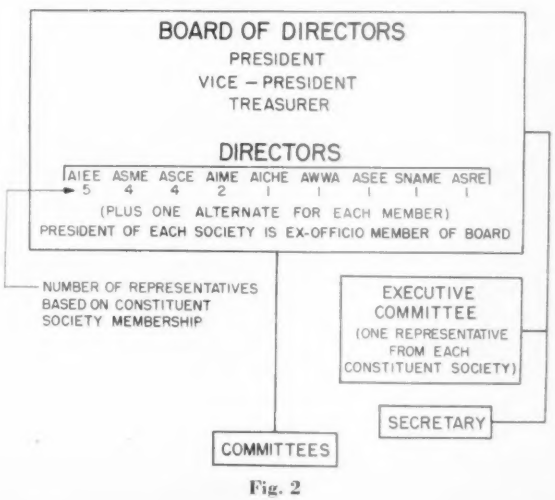
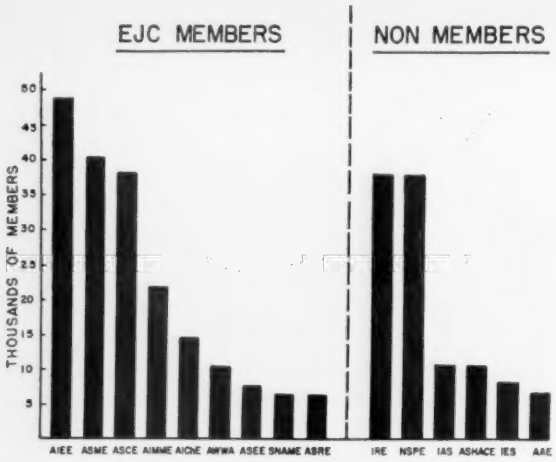

BOARD OF DIRECTORS
PRESIDENT
VICE – PRESIDENT
TREASURER
DIRECTORS
AIEE ASME ASCE AIME AICHE AWWA ASEE SNAME ASRE
5 4 4 2 1 1 1 1 1
(PLUS ONE ALTERNATE FOR EACH MEMBER)
PRESIDENT OF EACH SOCIETY IS EX-OFFICIO MEMBER OF BOARD
NUMBER OF REPRESENTATIVES BASED ON CONSTITUENT SOCIETY MEMBERSHIP
EXECUTIVE COMMITTEE
(ONE REPRESENTATIVE FROM EACH CONSTITUENT SOCIETY)
SECRETARY
COMMITTEES

Fig. 2



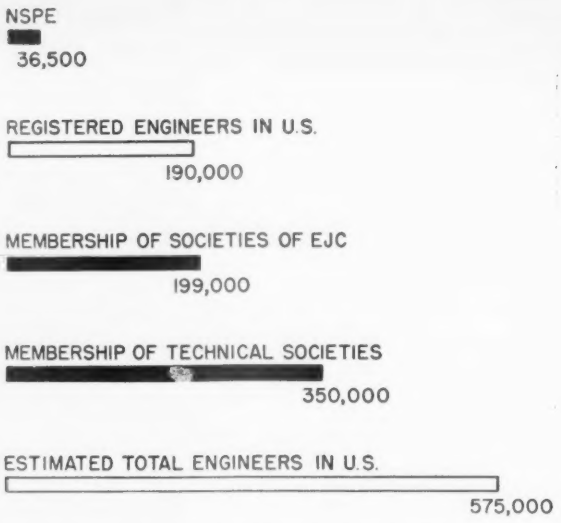


Fig. 3, above. Fig. 4, at right.

ure Three. Those to the left are the nine societies affiliated with EJC as constituent members; those on the right are the remaining six societies not yet affiliated with EJC.

Figure Four shows the total number of engineers in the United States estimated as about 575,000 and the membership represented in the technical societies as 350,000. This illustrates some of the problems in working out a plan of unity. It will be noticed that NSPE has 36,500 members or about one sixth of the 190,000 or more registered engineers in the United States. There are now over 200,000 engineers represented by the membership of EJC.*

The Need for NSPE in a Unity Organization

The unity problem can be stated in a very few words. Since we must have individual membership, and since we must have an organization that reaches to the grass roots, it would seem that the profession cannot have complete unity if it is represented by a federation that lacks the cooperation and tie-in with the NSPE, which already has a complete organization reaching down through state levels into local and county levels. NSPE is a going concern. Its fine record of accomplishment in the advancement of the engineer professionally is well known to all.

However, in order to fully utilize the NSPE organization some compromises will, of necessity, have to be made so that NSPE can represent engineers who, at the present time, do not desire to register because registration is not a legal requirement in their work. This temporary compromise is necessary until such time that a much larger proportion of the nonregistered engineers become convinced that registration of all engineers is a necessary step to complete recognition of engineering as a learned profession. It is evident that merely naming NSPE the unity organization, as some have hopefully suggested, is not the complete answer.

A New Plan for Unity

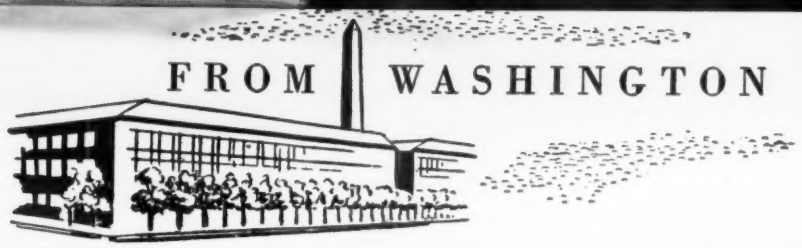
DURING the past year or so, a new plan for unity has been gaining favor. The new plan, *Figure Five*, which could be called the "AEA Plan" appears to have a great deal of merit. The AEA Plan would maintain a Technical Council utilizing the existing EJC organization, which would handle at top level all of the technical problems affecting the entire engineering profession. Working together with this group would be a professional council utilizing the NSPE organization, which would handle all matters of a professional nature affecting all engineers. Each of these groups would be based on making use of presently set-up organizations as autonomously as possible; EJC on the one hand with its present setup, and NSPE on the other hand with its existing state societies and local chapters. Connecting these would be a Board of Directors or Coordinating Committee which would coordinate the over-all policies of the two councils. This co-ordinating board and the two councils might be known as the "American Engineering Association." There would be no change in the prerogatives in the specialized fields now enjoyed by the technical societies.

Fig. 5

In EJC and NSPE we have two going concerns, each organization now doing splendid work in somewhat overlapping fields. A logical question is asked, "Why not make use of both, rather than perpetuate the present situation that leaves us divided instead of unified?" Unless we make a determined effort to unify what we have today, with a will and determination to work gradually toward the idealistic form of unity, we shall one day find ourselves

(*Continued on page* 49)

*(Membership figures are exclusive of students but include some percentage of non-voting members, such as Junior Engineer members of NSPE. These figures also do not recognize duplications, hence some members are counted more than once.)



FROM WASHINGTON

By
Milton F. Lunch,
N.S.P.E.'s Legislative Analyst

HIGH-LEVEL ATTENTION TO GOVERNMENT ENGINEERS' PROFESSIONAL CLASSIFICATION AND PAY

RECENT developments from important executive and congressional sources indicate that something may finally be done about restoring engineers and scientists in the Federal Government to a professional classification, together with pay adjustments to bring the federal compensation level for the professional employees more nearly into line with private salaries.

Almost exactly one year ago, NSPE testified before the Senate and House Civil Service Committees on the need for congressional action to increase the compensation of engineers in the federal service. At the same time, NSPE recommended that Congress further act to return professional engineers to a statutory professional classification, such as existed prior to 1949, declaring that the loss of the separate professional classification has led to a decline in morale among the professional employees. The committees were told that a restoration of the professional classification would be "a major step toward helping the government achieve its objective of attracting and holding fully qualified and competent engineers and scientists." The full NSPE testimony was published in the March, 1955, issue of the *American Engineer*.

Now, approximately one year later, these are the major developments which would appear to justify an optimistic outlook for corrective action this year:

- The Interdepartmental Committee on Scientific Research and Development has sent a report to the White House urging the Administration to sponsor a separate professional classification and a new pay system for engineers and scientists.
- Two key members of the House Civil Service Committee have announced their intention to introduce bills shortly to establish a professional classification schedule, with higher pay rates, for engineers and scientists.
- The Assistant Chief of Engineers has told a congressional committee that a restoration of professional grades for engineers would do much to help the Corps of Engineers recruit and retain engineering employees.

The Interdepartmental Committee on Scientific Research and Development was created by Executive Order in 1947 with a basic mission to study administrative problems of common interest to federal agencies engaged in scientific research and development. The group is now headed by Byron T. Shaw of the Department of Agriculture. Other agencies represented on the committee are: Departments of State, Commerce, Interior, Defense, Army, Navy, Air Force, Health, Education & Welfare; and the National Advisory Committee for Aeronautics, Atomic Energy Commission, Veterans Administration, National Science Foundation, and the Smithsonian Institution. Thus, the views of the group reflect the opinions of the major agencies employing engineers and scientists in large numbers.

Mr.
Byron T. Shaw

Although it is definitely confirmed that an official report has been sent to the President, the content of the report has not been released pending White House study and action. However, an unofficial version of the report indicates that Congress will be urged to act immediately to remove engineers and scientists from the general classification schedule. The report is said to contain convincing evidence that the government is falling considerably behind private industry in salaries paid the profes-

(Please turn the page)

sional employees, and that the gap is certain to widen in the future, thus making Uncle Sam's job of attracting and holding top-flight technical talent all the more difficult. According to the advance word on the report, the recommendations on compensation are along the line of permitting the various federal agencies to adjust salaries for engineers and scientists to match private industry rates.

The congressional proposal, likewise, is officially announced but details of the plan are lacking at the moment. The sponsors of the bills will be Representatives John E. Moss, Jr. and Charles S. Gubser, both of California, and both members of the House Civil Service Committee. Fortunately, this sponsorship will give the legislation a bipartisan flavor as Moss is a Democrat and Gubser a Republican. The Congressmen indicate that their bills will be introduced shortly after the Easter recess of Congress.

Gen. Itschner

Congressman Moss

Congressman Gubser

In a joint statement, the two Californians (who have collaborated effectively in the past in civil service matters as members of the state legislature declare that their purpose is "to create a modern salary system for scientific and professional positions in the Federal Government." Their bills will remove scientific and professional positions from the Classification Act of 1949 and create a new, modern classification system for scientific and professional positions at all levels, they said. Such a separate schedule must be established, the solons added, if we are to continue our pre-eminence in technological, scientific, and related fields in the face of tremendous advances made by other nations.

The actual Moss-Gubser Bills are still in the draft stages at this writing, but one report is that they will provide for 10 grades, ranging from about $4,180 to $17,500 per year, compared to the present 18-grade system with pay ranges from $3,670 to $14,800. "The urgent need for a realistic salary scale to attract and retain competent scientific and professional people in the Government was highlighted at recent hearings before our Committee," the California legislators asserted. "There is a critical lag in our defense that can be traced directly to the present antiquated pay system." Moss and Gubser pointed to recent committee action to provide additional top-level positions for the Department of Defense and the National Advisory Committee for Aeronautics, but termed this a "stop-gap measure." What is needed, they declared, is that "an entire new position classification, on a government-wide basis, must be set up in order to provide the means to both keep our present top people and replenish the supply at lower levels on a continuing basis. This is the only way we can remove the causes of the present unsatisfactory condition."

In recent testimony before the Senate Appropriations Committee, Major General E. C. Itschner, Assistant Chief of Engineers, brought in the professional classification and pay problem. He told the Senators that this "was one of the most serious problems confronting the Corps of Engineers," relating the difficulty of the Corps in recruiting young engineers as civilian employees. General Itschner said that the Corps of Engineers is the largest single government agency in the use of engineering personnel, and that its civilian work force of approximately 57,000 includes more than 8,000 engineers.

To meet the government pay rate disadvantage compared to private industry, the CE officer said, "it is our opinion that the entire grade structure for engineering and scientific employees in the Federal services should be raised in conformance with the trend in industry today."

On the point of a separate professional classification for engineering positions, General Itschner added that consideration should be given to the restoration of the professional service grades for engineer and scientist positions which were discontinued in 1949. "While the effect of such a restoration of the professional grade would be intangible, it is strongly believed that it would generally improve the morale and professional stature of our technical work force," he added. This is substantially the same point made by NSPE a year ago when it told the Civil Service Committees that "the fact of professional status does exist and it has been recognized from time almost immemorial that separate identification from other occupational groups is an important ingredient in maintaining and enhancing the morale and service of the professionals."

These important developments are indeed cause for elation and optimism by professional engineers in the federal service, but it remains, of course, to receive and analyze the specific and detailed legislative and administrative proposals to bring the matter to an altogether satisfactory conclusion.

A Profession of Diverse Individuals

By N. W. Dougherty, P.E.,

Former Dean of Engineering, University of Tennessee

THE strength of any profession is that its practitioners are individuals and they practice as individuals, but it is not essential that they be so diverse that they are suspicious of each other. Ours is a profession which reaches across wide areas of activity and rises to great heights of responsibility; indeed, the designer of a nuclear reactor may be a stranger to a photogrammerist or an irrigation engineer.

The wide area of the profession is suggested by the list of accredited curricula of Engineers' Council for Professional Development. There are twenty-one major curricula and at least a dozen options. Should we carry the study to national engineering societies we would find about one hundred branches and sub-divisions of engineering which support a national society. And this is not all; many of the major societies, like for example the civil engineers, have divisions by subject matter and field of specialization. The very nature of our work seems to cause us to divide and sub-divide to get smaller groups which are not strangers to each other. I have decided that this type of division has its place in professions which have developed special knowledge in limited areas of practice, and where there is need of exchange of the special knowledge.

In degrees of responsibility we have many shades, ranging from the beginning professional to the eminent practitioner, such as the chief engineer of a railroad or an industry or the head of a large consulting firm. Degree of responsibility is a factor in fixing compensation, eligibility for registration and grades of membership in the societies. It has much to do with working conditions and the ability to participate in the professional activities of the calling.

Beginning practitioners may be placed in groups which are working under close supervision, and where the individual exercises very limited discretion and judgment. Indeed, such groups may be doing routine work such as computing stresses, sizing members, making tracings, estimating quantities, making wiring diagrams, running analyses or a multitude of beginning tasks which tend to become routine. This phase of engineering practice is creating a real problem for progressive employers, and it is making many young engineers vulnerable to group activities. Groups of tens border on special problems, groups of hundreds create many problems and groups of thousands are so deep in problems that they are near losing their professionalism.

Always there will be employees who will be caught in details and who will never achieve high responsibility. They comprise the group of dissatisfied, who believe there was something lacking in their education, or who know that there is much lacking in their opportunity, or who believe that engineering is just another job. They, and others, are described by the University of Chicago School of Business:[1]

> The technical experts, engineers, and other professionals in industry seem to be far more frustrated than satisfied . . . professionals reveal only slightly more favorable attitudes than production workers or factory labor.

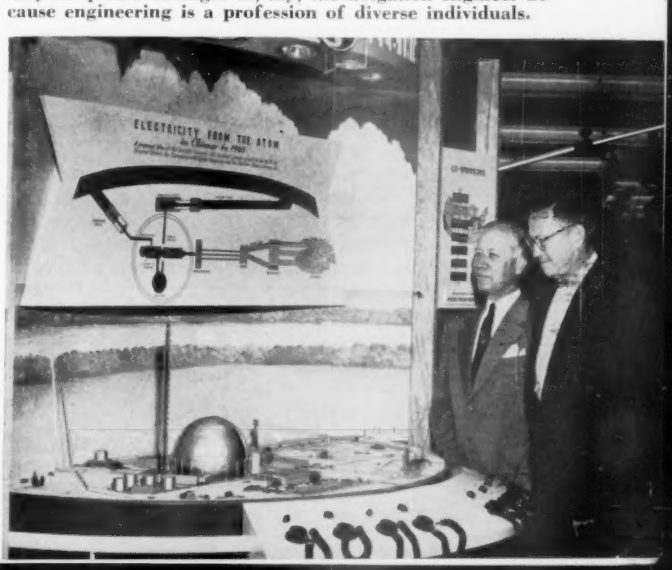
Questionnaires of NSPE and the national technical societies indicate about three per cent of those answering are members of a collective bargaining group, but all the inquiries find about thirty per cent of the replies indicate that such an activity would be beneficial to them. The three per cent is not disturbing, but the thirty per cent could be very unfortunate. It is obvious that there were reservations in the answers of the thirty per cent or there would actually be a much larger number who are collective bargaining conscious.

I would have engineers restless and always searching for new ideas, but I do not believe they can do their best if they are unhappy with their work.

A LARGE number of engineers are doing design, operations and management and use their engineering knowl-

[1] *The Professional Employment in Industry: The Unhappy Engineer,* by Moore and Benck, the University of Chicago, School of Business.

A model of the 180-000-kilowatt nuclear power station that will be built for Commonwealth Edison Company is presented to Willis Gale, right, chairman of the Chicago utility, by Ralph J. Cordiner, president of the General Electric Co. The author says that the designer of a nuclear reactor may be quite a stranger to, say, the irrigation engineer because engineering is a profession of diverse individuals.



edge and experience for more than routine tasks; they are the great body of professional engineers. On their shoulders rests the responsibility of performing the engineering tasks so essential in industry, transportation, communications, government and consultation. Their duties vary widely, from the design of a turbine to the operation of a chemical process, or from locating a superhighway to the evaluation of a mineral industry. Their activities are engineering, but they may never know much about each other's work because of the form of engineering organizations in the United States. They are engineers since they use the engineering method, they have studied engineering courses and they are registered as professional engineers.

There is one other group in each generation which we should mention. The members are the eminent in each major field, the leaders in thought and practice, and the individuals who give of their time and effort to improve

The first atomic energy reactor specifically designed for medical research will be built for the Medical Center at the University of California at Los Angeles by North American Aviation. Dr. Chauncey Starr, right, vice president in charge of NA's Nuclear Engineering and Manufacturing Div., and his associate Dr. Harry Pearlman, Chief Project Engineer, discuss the model of the 50 kilowatt reactor. In this article Dean Dougherty points out that first and foremost a profession must serve an indispensable social need; it must heal the sick, comfort the discouraged and direct the strong.

the knowledge and practice of the profession. They write the books; they develop the ideas; they are generally the spokesmen of the profession. Sometimes it seems that they are a bit distant from the youngster who is just beginning, but they are the persons who give tone and direction to our professional activities.

Thus we see that the range in activity is far and wide across our industrial civilization, from mining, transportation to the chemical industries, and across all kinds of design and operations, communications and sales to all agencies of government. Responsibility ranges from that of the beginning professional to that of the eminent chief engineer who is responsible for the engineering of a billion dollar enterprise, or the expenditure of hundreds of millions of dollars for government.

The Committee on Professional Recognition of ECPD in 1945 made a list of characteristics of a profession and a further list of the attributes of a professional. Let us look at these for a moment to see if we can fit our diverse engineering practitioners into the pattern.

First and foremost a profession must serve an indispensable social need; it must heal the sick, comfort the discouraged and direct the strong, protect the rights of citizens from each other or from ambitious government; it must take the loads from the backs of men and animals and place them on machines and processes. In this latter function we place our engineering practitioners, though they also protect the health of the community; they make the records which show property rights; they are the key to transportation and communications, and they are the master builders of the cities, towns and industries.

A profession requires discretion and judgment and its work is not subject to routine or standardization. It is a type of activity which is conducted on a high intellectual plane rather than an activity which requires manual skills and physical dexterity. Its practitioners are subject to a formal education extending over a period of years, and their responsibility increases with their years of practice:

> The professions[2] are occupations through which people obtain the highly specialized intellectual services.

Finally a profession must have a group consciousness which causes the members to share their technical knowledge and experience. It promotes their gathering together for the exchange of ideas. A profession must have legal status in order that it may require well formulated standards of admission. We can hardly think of a profession made up of a few individuals who neither know nor care to know each other.

We need not labor the idea that engineering falls within all these characteristics of a profession.

A professional is one who does these things and who has a service motive; he works in a relation of confidence, and follows a high code of professional practice. He is duty bound to do the work necessary to get the job well done. He cannot abandon a task because it takes more time than was expected:[3] "The true professional man should not allow his thoughts of compensation to outweigh his desire for service." We would not expect a doctor to abandon a patient because the clock was striking five.

The relation of confidence has been recognized for many centuries. Normally a professional has advanced knowledge not known by his patient, his client, his parishioner or his employer. He must act in the interest of his employer, to the best of his knowledge and ability, though his employer may be satisfied with something less. The Canons of Ethics say:[4] "The engineer will act in professional matters for each client or employer as a faithful agent or trustee." Not only is the engineer in a relation of confidence to his client or employer: he is in a relation of confidence to the public at large. He is duty bound to make his bridges, his water supplies, his machines and his processes safe for all who use them and for all who are supplied by them. By law he is the guardian of the public health and the public safety.

ALL professionals are motivated by a code of ethical conduct. Being a servant acting in a relation of confidence places very high ethical duties on all professional practitioners. As Burns puts it:

---

[2] *Education for the Professions*, by Lloyd E. Blauch, U. S. Office of Education.

[3] *Orientation in Engineering*, Mantell, Reeder and Stevens.

[4] ECPD-NSPE, Canons of Ethics, Paragraph 8.

Princes and lords are but the breath of kings,
An honest man's the noblest work of God.

One more thing I must say and then we will go to the problem of fitting our diverse individuals into the professional pattern. Professionals must be gregarious; they must meet together and exchange ideas and practices. One individual cannot make a profession; many individuals working alone cannot make a profession, but many individuals exchanging knowledge and building their experiences into one great whole can make a noble profession. Joint effort and joint judgment are better than the effort or the judgment of any individual in the group, provided they are motivated to do and think their best. Probably our best example in the group thinking is the writing of the Constitution of the United States. No one there thought the document was as good as it should be, but in spite of their fears, it turned out to be a better document than any one of them, as individuals, would have been able to write.

A profession does not take away individual judgment, but rather it fosters responsibility of the individual. There is no effort to make them into a pattern; Procrustes would have great difficulty in fitting them into his iron bed. The members must remain as individuals but there is a binding motive, a common method and a way of life. The Taft-Hartley Law says:[5]

> The term "professional employee" means:
>
> Any employee engaged in work predominantly intellectual and varied in character as opposed to routine mental, manual, mechanical, or physical work; involving the consistent exercise of discretion and judgment in its performance; of such a character that the output produced or the results accomplished cannot be standardized in relation to a given period of time; requiring knowledge of an advanced type in a field of science or learning customarily acquired by prolonged course of specialized intellectual instruction and study in an institution of higher learning or a hospital, as distinguished from general academic education or from an apprenticeship or from training in the performance of routine mental, manual, or physical processes; or
>
> Any employee who has completed the course of specialized intellectual instruction and study (as described in other parts of this Act) and is performing related work under the supervision of a professional person to qualify himself to become a professional employee as defined (in the Act).

There are other definitions of professional, but enough has been said to indicate our meaning when we use the word. Fortunately, there are methods of recognition which help separate the professionals as a group. Legal registration is one of the methods. It sets out minimum qualifications and the state boards certify persons who have met these requirements.

The national technical and professional societies also have minimum technical and professional qualifications for membership, and thus they act as methods of recognition.

When an individual has attained eminence in his field there is a general public recognition of his status, though public esteem does not always mean high professional achievement. Only professionals can judge the work and the pronouncements of professionals; if they join with the public in acclaim and esteem, recognition by the public is also real recognition.

[5] See the Act.

Conflicts to be Resolved

As individuals we have various points of view; as scientists we expect each person to have his own attitude and to take his own responsibility. However, there are differences which are due to lack of information, other differences due to education and experience, and still others which are due to type of work and conditions of work. By searching for information and seeking understanding, most of the differences in point of view can be harmonized.

Many practitioners would look on engineering as a business; they would incorporate with businessmen as partners and would operate a construction organization which does its own engineering. Such an organization has some fiscal advantages, but it is driving a hard bargain with professionalism. Its engineering services are a part of the business rather than the independent personal service which is characteristic of a professional.

A great majority of the states allow corporate practice provided a registered engineer is in charge of the engineering. However, the corporation is not registered and a Federal court has said it cannot be. There are some fiscal advantages of a corporation over a partnership, but this type of organization tends to make for a business rather than a profession. The least that should be required is that all the responsible officers of such a company be registered practitioners.

In our description of engineers we pointed to wide diversity in practice and great depth in responsibility. For the purposes of this title, let us classify them as beginning professionals, semi-professionals, and professionals. Beginning professionals furnish a simple type of problem, semi-professionals furnish a more difficult type, while the professionals, by their wide interests, furnish still other but solvable problems. No one has been able to set forth a panacea, but if we keep working in good faith we will be able to dissipate most of our difficulties.

Let us look first at the beginning professional. By the very nature of his early experience he is called upon to do tasks that non-professionals will do as a career. To become a designer, a research worker or an arm of management he must know some of the elementary tasks which later it becomes his duty to direct and supervise. He can learn them best by doing them. This places him in con-

Construction workers at the Atomic Energy Commission's Paducah, Ky., plant queue up to punch the clock at the end of a day's work. The author says that the greatest threat to professionalism is collectivism.

tact, if not in competition, with certain skilled workers. Unless his position is well defined, his skilled neighbors will wonder why the engineer is working under different conditions from those set out for his own guidance. This is normal and natural and is set out in the Taft-Hartley law by the statement that such an employee is qualifying himself to become professional and he should be treated as a professional.

There are other problems, such as disparity of compensation, which must be solved by enlightened management and not allowed to become critical. Young engineers know that they must acquire experience; they know that working conditions are not the same for them as for some other persons who punch the time clock. However, they will be discouraged when they see younger engineers come to the job on competitive salaries which are nearly if not as much as theirs.

The most difficult group comprises about thirty per cent of all engineers. Our Professional Engineers' Conference Board in its studies has found a rather large group of employees who were dissatisfied with their work. Some of them thought their education was deficient, some thought that they were not appreciated, others thought that management should give them more responsibility and still others did not like their work. These employees range in experience from a few years to many years; some have been caught in routine tasks, others have not been adequately promoted, and still others have roamed from job to job. At times they have become rather voluble in their advice to young engineers.

This particular article is not being written to discuss the compatibility of unionism and professionalism, but it suffices it to say that NSPE[6] has spoken on the subject, and I am strongly on record as believing that the two are incompatible.[7]

The two-thirds to three-fourths of the engineers who do not believe in unions have much difference of opinion on unity. Generally, they believe that a unified profession is desirable, but they certainly do not wish to give up their habits of thought, their ways of arriving at conclusions, or their right to organize as they please. The very nature of their calling and the background of their organizations has tended to fragmentation rather than to one big society or association. To begin with, they are individuals; their education and practice emphasize this quality. Their technical organizations have been designed to bring like minded applied scientists together to discuss common problems. Their specialization has caused them to drift away from common knowledge to very technical knowledge; they think of mathematics and the sciences as tools rather than fields of work. The result has been technical organization after technical organization and the end is not yet.

In 1852 the American Society of Civil Engineers made a bid to all engineers; the founders planned a society in which all engineers would find a home and all would be able to discuss their common problems. (A member of the Society shall be a civil engineer or other person similarly qualified in another branch of engineering or in an allied profession.) But it turned out that the problems were not common: there are thirteen major divisions of the Society, and the mechanicals, the electricals and the chemicals are finding that they have many specialties under the same society roof. This is what we would expect for any engineering society which gives major emphasis to technical problems. First the national technical societies were organized to discuss technical problems, and incidentally to furnish a forum for the development of the profession.

When we talk about unity in the profession we can join with King Solomon who said: "There is nothing new under the sun." We have tried about everything we can imagine, and all efforts for unity have run into the shallows because of our greater desire for individuality. We are nurturing EJC which is the second major effort to get a federation to speak for the profession. The first time in the American Engineering Council the scope was limited and the resources depended upon good will among the participants. At first the sailing was smooth, but after two decades the ship ran upon the ground. Independent, and individual action was, at least a major part of the trouble.

MANY members of NSPE feel that we have the right type of unity organization. They emphasize the desirability of individual membership, which limits both the resources and the achievements to what individuals can do as a group. There is no assurance that always the individual members will want what is good for the whole. Our outstanding example is the American Association of Engineers which grew to a large membership of individuals, and then dropped to about half its maximum number. It embarked upon a policy of helping its members by studying employment conditions, and by operating an employment agency. This field of activity has the dragon's teeth of its own losses, since those who are satisfactorily employed have little need for either study of conditions or an employment agency. To do its work well made for membership who had no further need of its services.

I have been one of those hopefuls who have joined, and taken part in practically every movement for a unified profession, and it is to come after I have left the stage of activity. It will probably come when there is an overpowering need instead of a pious hope for unity.

Some Suggested Answers

Here is the rub. Engineering must certainly keep its independence of action and individual approach. To become unified it must not lose its interest in technical problems and in original solutions. To many members individuality is their great interest, and they meet others

(*Continued on page 37*)

About the Author . . .

N. W. Dougherty

As a past vice president of NSPE and a nationally-known figure in professional circle, N. W. Dougherty scarcely needs an introduction to AMERICAN ENGINEER readers. Also a past vice president of the American Society for Engineering Education, he has had an illustrious career in the educational field. Since 1940 he has been dean of engineering at the University of Tennessee, a post from which he will retire next September.

A graduate of the University of Tennessee and Cornell University, Dean Dougherty has also taught at Cornell and at George Washington University in Washington, D. C. Since 1927 he has been chairman of the Tennessee State Board of Examiners for Architects and Engineers, and he is a former president of the National Council of State Boards of Engineering Examiners.

He is a member of many other professional, technical, and honor organizations, and he is well known, too, for his interest in athletics and his activity on intercollegiate athletic boards and as a member of the Southern Conference.

[6] Board Policy.

[7] EJC Panel at annual meeting, January, 1955.

NSPE V. P. Frazza Serves in Commerce Dept. Position

The appointment of Louis F. Frazza of Hawthorne, N. J., a vice president of the NSPE and an executive of the Johns-Manville Sales Corporation, as director of the Water and Sewerage Industry and Utilities Division, Business and Defense Services Administration, U. S. Department of Commerce, has been announced by BDSA Administrator Charles F. Honeywell.

Throughout his business career, Mr. Frazza has specialized in water and sewerage construction and engineering, and related activities. His acceptance of the appointment brings to the BDSA current expert knowledge of the field. The Government training provided by his work with the Division will prove invaluable should his services be made available in any future emergency.

Mr. Frazza was born in Bergen County, N. J., May 26, 1900. He received his early education and training at Paterson, where he moved at an early age with his parents. After attending St. Peters Preparatory School at Jersey City, he engaged in the construction and engineering business in 1919.

Louis F. Frazza, P.E., of Hawthorne, N. J., an executive of the Johns-Manville Sales Corporation, is pictured being sworn in as Director of the Water and Sewerage Industry and Utilities Division, Business and Defense Services Administration, U. S. Department of Commerce. Administering the oath of Office is BDSA Administrator Charles F. Honeywell.

In 1928 Mr. Frazza established the Frazza Construction Company at Paterson, which he operated until 1937. In that year he sold the company and became associated with Johns-Manville. He has been with that company continuously since 1937, acting in various capacities, including Staff Manager for the New York District, and is presently Manager of Direct Sales, Transite Pipe Division. In these positions he has worked directly with water and sewerage utility operators and engineers on design and layout problems throughout the United States.

Mr. Frazza is a past president of the New Jersey Society of Professional Engineers. He also is an active member of the American Water Works Association, the Federation of Sewerage and Industrial Wastes Associations, and is a Trustee of the North Jersey Water Conference.

Michigan Court Against 'Architectural' Title for P.E.

A registered professional engineer may not lawfully describe himself as an "architectural engineer," according to a decision of the Supreme Court of Michigan. At the same time the high court upheld the constitutionality of the state engineering registration law.

Charles W. Babcock, a registered professional engineer under the Michigan law, was convicted in the lower court for unlawfully using the designation, "Architectural Engineer and Builder," and he appealed to the higher tribunal, urging that his P.E. registration entitled him to use the architectural engineering designation, even though he was not registered as an architect. He also alleged that the joint engineering-architectural registration act was unconstitutional as a denial of due process under the Federal and Michigan constitutions, and because the law provided an illegal delegation of legislative authority to an administrative board without providing any yardstick for the exercise of the authority.

After quoting the separate definitions of "engineer" and "architect" under the law, the Supreme Court pointed out that the law stipulates separate examinations for registration as an architect, or as an engineer. "It clearly appears from the above statute that the legislature intended that applicants have certain and definite qualifications before they are entitled to take an examination in either of the three mentioned professions." The reference to the third profession in the court's opinion related to land surveying which is also covered by the joint law in Michigan.

"In our opinion it was the intention of the legislature to segregate architects, professional engineers and surveyors into three distinguishable categories . . . ," the court said. "While it is a fact that the definitions of architects and engineers are somewhat similar, yet there is a distinction. The services of an architect require the application of the principles of architecture or architectural design, while the services of an engineer require the application of engineering principles."

The Supreme Court reasoned from this interpretation that "it clearly appears that the legislative intent in enacting the act was to safeguard life, health and property, when it restricts to qualified persons, both as to education and experience, the designing and construction of a building."

Babcock had testified that his practice included the design and building of houses and some construction, including design other than houses. He said he sold plans and specifications throughout the United States through the National Home Plan Bureau, which he owns. He said that he drew some of the plans and some were drawn by students under his supervision.

In upholding the constitutionality of the registration act, the high court

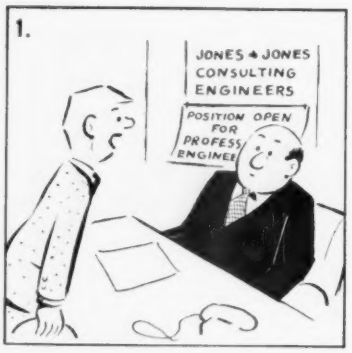
(Continued on next page)

(*Continued from page 23*)
declared that the leaving of details of operation and administration to the board is not an objectionable delegation of legislative power. It added that the act was not unconstitutional on the grounds of denying equal protection of the laws because it excludes from its effects architects or engineers working on a temporary basis, not to exceed 60 days, or being engaged in serving the United States, or those operating on interstate or railroad property, and other exceptions noted in the law. To this argument, the court quoted from an earlier case: "The classification is sufficient if it is practical and reasonable. It is not reviewable unless it is palpably arbitrary and unreasonable. A lack of abstract symmetry does not matter." To this the court added, "The exemptions enumerated in the act do not constitute objectional discrimination so as to deny equal protection ot the laws."

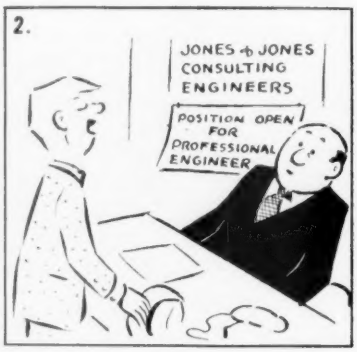
Concluding that the act is constitutional, the Supreme Court said: "The object of the act is to safeguard the life, health and property of the citizens of the state by providing tests for each applicant, and to provide certificates to those who meet the qualifications provided by the legislature."

A Dream of Perfection

by Hoppes

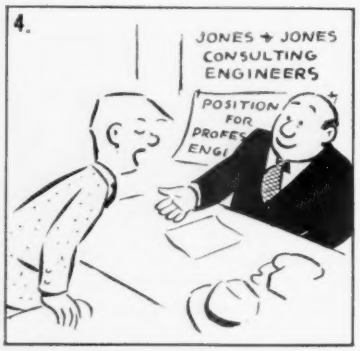


I can handle the design and construction of a plant; draftsmanship. . .



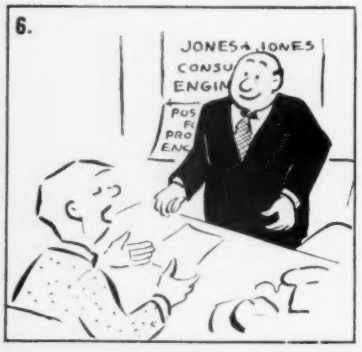
The erecting and commissioning of engineering equipment; estimating. . .

Inspecting and testing of engineering equipment; surveying. . .



(thanks) Operate industrial plants of all kinds; supervise personnel. . .

Activities connected with research and development; sales engineering. . .



Testing of materials. . .

Handle the training and education. . .

"Wake up, dear,—time to get up!"

N.S.P.E. Believes

THE THREE-LEVEL SOCIETY

BY PAUL H. ROBBINS, P.E.

Executive Director

N.S.P.E.

A MEETING of state presidents is an inspiration for all who attend. A number of very important basic philosophies are always discussed, but it is particularly encouraging to note the sincerity and genuine interest in improving the professional status of engineering and the desire to expend personal effort in solving professional problems on the part of the leaders of the forty-one state societies which go to make up NSPE.

A two-day meeting, of course, is far too short to explore the many facets of the professional problems of engineering. One of the observations frequently expressed at the Conference is the regret of all those in attendance that more members and non-members of NSPE do not have an opportunity to participate in this type of discussion. This, of course, points up a perennial problem not only of our Society but of any organization—of communicating to the members the tremendous volume of work not only facing a professional society but being accomplished on behalf of the members.

The agenda of the State Presidents' Conference covers the entire field of professional considerations, as well as many of the details of inter-relationships between chapter, state and national organization and Society administration. Throughout the Conference, however, there is repeated reference and evidence of the effectiveness and value of the three-level pattern of organization of NSPE. Virtually no subject is discussed on which there is not activity evident at all levels. It is also apparent that the really effective program or solution of a particular problem requires consideration, action, and support at all three levels. Whether the problem be legislation, vocational guidance, collective bargaining, or competitive bidding, among others, the real value of the solution and programs in these areas must ultimately accrue to the individual engineer directly involved.

The NSPE pattern of organization, of course, is ideally suited for solution to these problems, both from the local to the national level, and return. Somewhere, an individual or group of individuals is faced with a problem. He must have an opportunity to present this problem to his professional society and to discuss it with other professionals affected by the item in question. Suggestions for solution may require only the concerted action of his fellow professionals at the local level, but in many cases a general policy for the profession or for the state is necessary. The provision for solution of these problems and for carrying them to the higher level is available through NSPE, and the chapter representatives can take it to the state level for consideration. There, the study of committees with statewide scope and the consideration of other chapters can be brought to bear upon the problem. Again, the solution may affect more than one state, and here the mechanism of NSPE, whereby the state representatives can bring it to national consideration, shows its worth. In reverse, once a nation-wide policy has been established, the mechanism of NSPE again provides the implementation and solution to the problem back through the state to the local chapters and the individual.

The State Presidents' Conference provides an opportunity for exchange of solutions, ideas, and activities which states have found successful in resolving problems in their areas, but which may not necessarily have required national attention. It is further valuable in providing to the officers of the state societies the multitude of nation-wide experiences which may be helpful to them as they meet the problems in the coming year. NSPE has recommended (and many states conduct) similar programs for chapter presidents and, where possible, committee chairmen and others concerned with the local problems. These conferences provide an excellent mechanism for a partial solution of this all-important problem of communications. While all who attend regret that wider participation of interested officers and committee people is not feasible on a nation-wide basis, they are convinced that by carrying forward the same conferences at state and local level the advance of the professional status of engineering can be considerably enhanced.

When one considers the extent of voluntary time and effort represented by the thousands of committees in the National Society, its forty-one state societies, and its 350 chapters, concerned with professional problems of engineering, one realizes beyond doubt the value of the three-level organization represented by the NSPE.

Comparing Notes . . .

State Presidents Meet to Review Progress; Boring Speaks

Dr. Maynard M. Boring, president of the American Society of Engineering Education feels that Americans should spend less money for the material things of life and give more serious thought to financially shoring up their weak educational system.

Appearing as a featured speaker before the recent joint meeting in Dayton, Ohio, of the Ohio Society of Professional Engineers and the State Presidents' Conference of the NSPE. Dr. Boring called for a complete reappraisal of the educational setup as it now exists in this country.

Referring to his many trips over the past few years to European nations, the speaker said that "all too many senior engineering school students in this country could not pass the examinations of 18-year-olds over there.

"The European educational system is a vicious weeding out process from beginning to end. Those who survive until they are in their late teens, truly possess a background that prepares them for university study and much hard work," he went on to say.

Dr. Boring feels that too many citizens are more interested in a new TV set or automobile than they are a new school or adequate teachers' salaries. Saying that more money is spent on alcoholic beverages in a year than on education, the head of ASEE called for "grass roots" participation in school matters deploring the "let Washington do it" approach.

"Again, we go out of our way to aid students who for one reason or another are not too brilliant or are otherwise handicapped, but what do we do for our 'gifted' people?" Boring asked. "Somehow we should find ways of aiding the 'gifted' and directing

Shown is one of the Functional Group sessions held by the Ohio SPE. This meeting was devoted to engineers in education. Panel members, shown at table in front of room, were, from l. to r., Charles F. Savage, consultant for professional relations, General Electric Co.; Dean E. J. Taylor, Jr., Ohio University, presiding; and Dean Gordon Carson, Ohio State University.

Here is a typical scene during the conferences of the State Presidents. Shown standing and speaking to his fellow workers in professionalism is Texas President J. B. Dannenbaum.

Listening intently during a session of the State Presidents is NSPE President Allison C. Neff, left. Presiding at the moment is NSPE Vice President Warner Howe of Memphis, Tenn.

them along the right paths."

Dr. Boring also pointed out that contrary to common belief the manpower shortage in the nation is not confined to the technical fields but exists in others as well. Further, the speaker said that for the first time in the history of the United States we are "losing" many productive years through military training, and that this will undoubtedly be the case for some time to come.

Delivered at the noon luncheon on Saturday, March 24, Dr. Boring's talk was a highlight of the third and final day of the joint affair. Although the Ohio SPE had begun its Annual Meeting on Thursday, March 22, the State Presidents of the National Society did not convene until Friday, March 23.

The Chief Executives of the State Societies undertook a full program that covered state and national activity in the following fields: registration laws, professional development, education, functional groups, engineers in private practice, engineers in industry, ethical practices, negotiations with the Engineers Joint Council, public relations, chapter programs and activities, publications, junior engineers programs, and the like.

The State Presidents' sessions were presided over by NSPE President Allison C. Neff, of Middletown, O. In his opening remarks President Neff reminded the participants that the conference was "a state affair to discuss state problems." He urged all present to submit written questions to the chair on any subject so that discussion could be developed.

The program marked the seventy-eighth annual convention of the Ohio SPE, and the entire proceedings were hosted by the Dayton Society of Professional Engineers, Hans Belitz, P. E., President.

On Thursday John D. Coleman, P. E., Past President of both the Ohio SPE and the NSPE spoke at luncheon on "The Cold War at Home." In the evening the Ohio trustees held a dinner and were addressed by President Neff who dealt with the subject of "The Engineer and His Government."

On Friday the Ohio Society began its business sessions. The luncheon speaker was Herbert W. Starick, City Manager of Dayton, and in the evening the engineers attended a buffet dinner and dance. The next day the functional group sessions of the Ohio organization were held followed by the luncheon at which Dr. Boring appeared.

Saturday evening the Annual Banquet was highlighted by the presentation of the Ohio SPE Citation to John D. Coleman, P. E., by Engineer Raymond A. Freese. At the same time A. H. Samborn, P. E., new Ohio President was presented with the gavel by retiring president, C. Ramond Hanes, P. E.

A more complete report of the Ohio functions along with additional pictures will be carried in the May issue of the *American Engineer*.

Briefs

(Continued from page 8)

Ohio State Plans Engineering Conference

The College of Engineering at The Ohio State University has announced that its Annual Conference for Engineers will be held in Columbus at the Ohio Union on May 4. Discussions of new developments and concepts in the various fields of engineering will be presented by staff members of the College of Engineering and selected industrial personnel.

Further information about the conference may be obtained from Harold A. Bolz, Associate Dean, College of Engineering, The Ohio State University, Columbus 10, Ohio.

Professor J. J. Uicker Takes BOCA Post

Professor John J. Uicker, chairman of the Department of Mechanical Engineering of the University of Detroit, has agreed to act as a consultant to the Material Approvals Committee of the Building Officials Conference of America. Professor Uicker is also a member of the Michigan SPE and NSPE.

The BOCA is an organization for service to local public officials engaged in the preparation or administration of governmental regulations controling the design, construction and use of buildings and structures to provide for the public safety. As part of its program it has prepared a nationally-known model building code, which has been adopted by more than 200 communities.

Patent Examiner Jobs Are Available

Engineers and scientists who are interested in positions as patent examiners should contact the Commissioner of Patents, Washington 25, D. C., for full information on the jobs currently available in the U. S. Patent Office, according to a recent announcement.

Patent examiner positions call for a college degree in engineering or applied science, a degree with a major in chemistry or physics, or certain combined credits in these fields.

NATIONAL ENGINEERS' WEEK, 1956

The Spotlight Was Bright; The Highlights Many

To Begin With—

The Week is over for this year, but the results in public appreciation of the engineering profession, growth of professional prestige, and increased student interest in engineering as a career will be long-lasting. Made possible only by the concerted efforts of countless members of the state societies and chapters throughout the country, the observance marked a significant milestone in the history of the National Society of Professional Engineers.

Proclaimed officially by mayors and governors, saluted in a letter from President Eisenhower, heralded by special sections of newspapers and special editions of professional magazines, enjoying the wholehearted cooperation of industry, and keyed to the theme, "Engineering . . . Builder of a Brighter Future," the Week had a coast-to-coast impact that made the professional engineer the man of the hour.

The February issue of the AMERICAN ENGINEER brought a preview of events to come during the Week. Initial reports were reviewed in March. Now, in text and pictures, we proudly present a survey of many of the highlights of National Engineers' Week, February 19-25, 1956.

Arizona Repeats

The Arizona SPE, which sponsored one of the outstanding observances of '55, repeated its success with a statewide program which had the cooperation of all the other engineering societies in the area and was climaxed by a banquet at the Hotel Westward Ho in Phoenix, attended by Governor McFarland and many other leading officials. The Arizona P.E.'s also sponsored a speakers' bureau and visited the Phoenix area schools as career counselors. One result of the ASPE program was an increase in membership queries to the Society.

California, Delaware, Georgia Join the March

Banquets featuring outstanding speakers were the order of the Week in California. San Diego P.E.'s heard General J. T. McNarney; they did yeoman work with students, too. . . . Former Secretary of the Navy and now President of Aerojet-General Corporation Dan Kimball addressed the banquet of the Los Angeles Council of Engineering Societies in which local CSPE members participated; General Omar Bradley was toastmaster for the event. . . . With the cooperation of the San Francisco Engineers Speakers Club, an independent organization, the Golden Gate, East Bay, and Peninsula Chapters provided speakers for twenty-one clubs, schools, and social groups.

Delaware P.E.'s heard H. W. Prentis, chairman of the board, Armstrong Cork Company, talk on *The Foundations of National Defense* at their banquet in Wilmington. They sponsored a high school essay contest, too.

In Georgia, the emphasis was on creating interest in engineering as a career with the ten chapters of the Georgia SPE and Georgia Tech cooperating in a program to bring eighty interested high school students from throughout the state to Atlanta for a visit to the renowned engineering school. The GSPE also scheduled its annual meeting during the Week.

Illinois Was on the Air; In Indiana—An Admiral

Radio and TV carried the Engineers' Week message through the sponsorship of various local chapters of the Illinois SPE. The broadcast program of the Rock River Chapter of Dixon was particularly strong with half-hour panel discussions arranged for both media, as well as a fifteen-minute radio interview with L. B. Cappa, division vice president, Commonwealth Edison Company, just prior to his speaking at the chapter's banquet. . . . Central Illinois Chapter P.E.'s arranged for three special radio programs in addition to spot announcements. . . . The Capital Chapter of the Illinois SPE was another that emphasized radio and TV sponsorship; its speakers' bureau arranged the appearance of leading P.E.'s at various Springfield service clubs; and the celebration was capped with a banquet, held in cooperation with the Springfield Engineers' Club, at which NSPE Vice President Virgil Gunlock was the featured speaker.

One of the highlights of the observance in Indiana was the banquet in Fort Wayne, attended by area ISPE members, as well as by the members of twelve other local technical and professional organizations. Speaker of the evening was Rear Admiral Frederick R. Furth (ret.), former chief of Naval Research, who discussed the space satellite program. "Citizen-Engineer" awards, presented during the banquet, went to Admiral Furth, Colonel Chester Lichtenberg, R. P. Cheesman, Otto Gumpper, and C. J. Herman.

The Kansas Story

The Kansas Engineering Society held its annual meeting in Wichita during the Week, with NSPE President Allison C. Neff as one of the principal speakers. Each of the eight chapters of the KES—Eastern, Southeastern, Topeka, Golden Belt, Wichita, Tri-Valley, Hutchinson, and Smoky Valley—reported a successful observance in its area. . . . In Wichita, Kenneth Razak, head of the Engineering Department at the University of Wichita, appeared as guest moderator on a TV panel program, *Youth Wants To Know*. . . . The Golden Belt Chapter turned its February meeting into a forum on the profession for high school juniors and seniors in the area.

Massachusetts Success

No less than twenty outstanding Engineers' Week displays were spotted strategically around Boston as a result of the work of the Massachusetts Engineers' Week Committee, which also enlisted the cooperation of the Engineering Societies of New England, an organization of twenty-one technical associations, in carrying out its program. Engineers' Week activities were initiated in many areas where there had been no previous participation. The P.E.'s arranged for the Boston Museum of Science to dedicate its weekly radio program to the Week. . . . The North Shore and Metropolitan Chapters cooperated in various aspects of the observance in the Lynn-Boston area. . . . The Berkshire Chapter of the MSPE secured extensive radio, TV, and newspaper coverage in the Pittsfield-North Adams area, with other societies and local industries cooperating also.

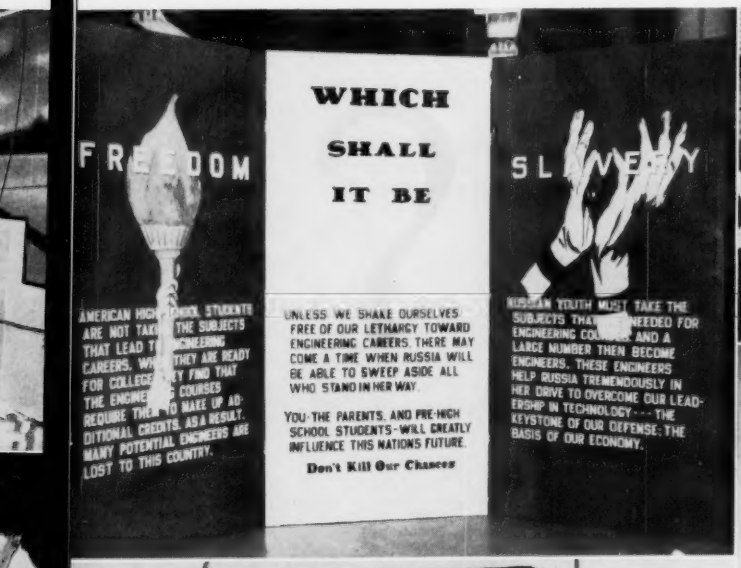
In Detroit—Radio, TV; In Lansing—The Governor

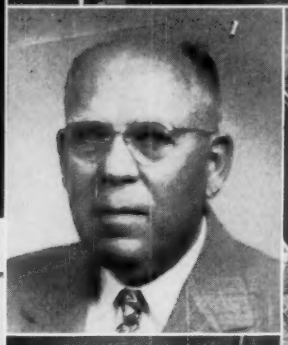
Members of the Detroit Chapter of the Michigan SPE were kept busy during the Week making radio and TV appearances. They also secured a proclamation from Mayor Cobo and sponsored a banquet at which Nevin L. Bean, Ford Motor Company engineering executive recently returned from Russia, told of what he saw in the Soviet Union. . . . Governor G. Mennen Williams was a guest at a banquet in Lansing, sponsored by the Grand Valley Chapter. In addition to the Governor, other speakers were Gordon N. Thayer, chief engineer, American Telephone and Telegraph Company, New York City, and Harvey A. Wagner, assistant manager of engineering, Detroit Edison Company.

(*Please turn the page*)

EVERYWHERE: ENGINEERS' WEEK—*Opposite page, top photo:* Looking over an exhibit in the Lansing, Mich., Civic Center are, l. to r., G. N. Thayer of New York City, Governor G. Mennen Williams, J. Gardner Martin, president of the Grand Valley Chapter, and Jack F. Wolfram. *Lower photo:* Mrs. D. I. Dikman and Mrs. F. M. Bartlett inspect a display sponsored by the Tulsa, Okla., Ladies' Auxiliary.

***This page, top left:* A specially-designed, three-panel background piece that was used with vocational guidance displays in the Philadelphia area. *Lower left:* Participants in a Westchester County Chapter panel discussion. They are, l. to r., the Hon. Frederick G. Schmidt, moderator, and Vincent G. Terenzio, Max Vogel, Richard M. McLaughlin, Harry C. Otten, and Charles W. Ryan. *Top right:* Pictured at the Minnesota SPE convention are Arthur W. Tews, MSPE president; W. L. Hindermann; NSPE President Allison C. Neff, and L. P. Zimmerman. *Lower right:* The busy Mr. Neff arrives at the Tulsa airport to be greeted by L. L. Dresser, a past NSPE president. *Center panel, top photo:* E. N. Noyes, "Engineer of the Year" honored by the Nueces Chapter of the Texas SPE. *Lower photo:* Walter T. Lucking, Arizona's "Engineer of the Year."**


WHICH
SHALL
IT BE
UNLESS WE SHAKE OURSELVES FREE OF OUR LETHARGY TOWARD ENGINEERING CAREERS, THERE MAY COME A TIME WHEN RUSSIA WILL BE ABLE TO SWEEP ASIDE ALL WHO STAND IN HER WAY.
YOU-THE PARENTS, AND PRE-HIGH SCHOOL STUDENTS-WILL GREATLY INFLUENCE THIS NATIONS FUTURE.
Don't Kill Our Chances
AND A LARGE NUMBER THEN BECOME ENGINEERS. THESE ENGINEERS HELP RUSSIA TREMENDOUSLY IN HER DRIVE TO OVERCOME OUR LEADERSHIP IN TECHNOLOGY - - - THE KEYSTONE OF OUR DEFENSE: THE BASIS OF OUR ECONOMY.



Neff Visits Minnesota

The Minnesota SPE was another society that held its annual meeting in Minneapolis during the Week. President Neff visited the meeting, also, while on his Engineers' Week tour of chapters and state societies, and discussed the problem of encouraging more science and math courses in the secondary schools. A full program of radio and TV shows, displays, news releases, proclamations, and so on was also followed in the various MSPE chapter areas.

Full Program Followed In Missouri

Radio, TV, and newspaper coverage, visits by engineer speakers to various service clubs, and assistance in school guidance programs marked the Week's observance in Missouri. . . . St. Louis P.E.'s heard Charles N. Kimball, president of the Midwest Research Institute, Kansas City, at their banquet, and also sponsored a half-hour TV panel discussion on *The Space Satellite and the International Geophysical Year*. A. H. Baum received their award for outstanding service. . . . The Northwest Chapter was particularly active with a school program. . . . The Southwest Chapter arranged for coverage by one TV and seven radio stations. . . . The Rolla Chapter climaxed its activities with a joint banquet with the local Chamber of Commerce; the efforts of its members also resulted in an impressive special edition of the *Rolla Daily News*. . . . The Western Chapter secured the cooperation of the Kansas City Chamber of Commerce, and Kenneth A. Spencer, president of Spencer Chemical Company and a well-known engineer, addressed the special Engineers' Week luncheon.

Nebraska, New Jersey, New Mexico Report

Nebraska P.E.'s sponsored the usual Engineers' Week programs in their area, with the Eastern Chapter holding its annual meeting on February 22nd. Special career counseling meetings were held between Omaha high school students and P.E.'s. . . . The New Jersey SPE coordinated its Engineers' Week program with the national observance and also proclaimed February as "Engineers' Month," with all February meetings keyed to appropriate professional themes. . . . In New Jersey, too, the College of Engineering of Rutgers University held its second annual Open House during the Week. The exhibits prepared by all departments of the College plus those sponsored by many industrial concerns attracted nearly 5,000 spectators, chiefly interested junior and senior high school students from the area.

The New Mexico SPE was another society holding its annual meeting during the Week. The meeting was held in Albuquerque. Providing a "conversation piece" at the meeting was a gigantic display—a master-plan map of the University of New Mexico campus spotlighting the contribution

of the many branches of engineering to the design and operation of the "plant" of the educational institution.

New Yorkers Did Yeoman Service

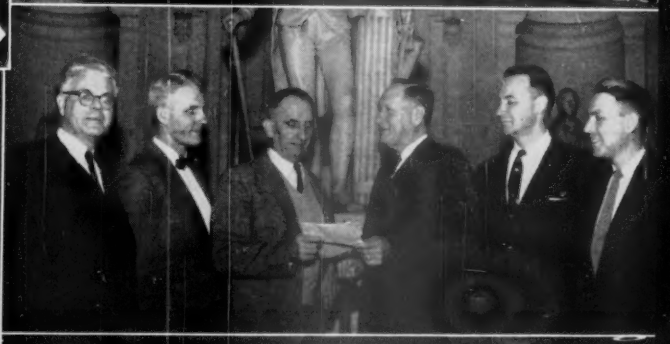
Engineers in New York State were among the most active in promoting the observance of the Week. . . . The Suffolk County Chapter of the NYSSPE secured the cooperation of the Brookhaven National Laboratory in providing photos for exhibits, the first time such research pictures had ever been on display. Speakers from the chapter also addressed the Rotary Clubs of Bay Shore, Sayville, and Greenport, and the Kiwanis Club of Patchogue. . . . In Schenectady, members of the NYSSPE chapter were joined by the local sections of the AIEE and the ASME, as well as the Schenectady General Electric Engineers Association in charting plans for the observance in which many prominent speakers took part. . . . The Kings County Chapter obtained a proclamation from Brooklyn Borough President John Cashmore, detailing the many specific contributions engineers have made to that locality.

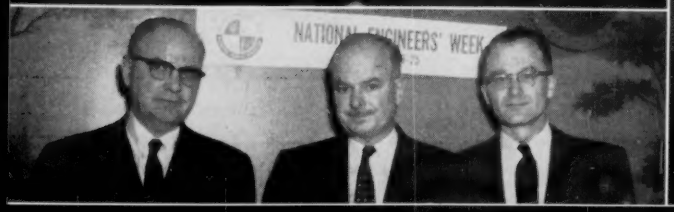
The Westchester County Chapter pointed with particular pride to the meeting it sponsored in Mount Vernon, N. Y., for members, guests, and students interested in engineering as a career. The first part of the program featured a panel discussion pinpointing jobs, opportunities, and responsibilities in the various branches of the profession. . . . The Reverend Benjamin Kuhn, professor of mathematics at Siena College, Latham, was the Engineers' Week speaker at the Albany County Chapter's meeting. . . . NSPE Executive Director Paul H. Robbins spoke at the Erie County banquet.

(Please turn the page)

PROCLAMATIONS, DISPLAYS, VOCATIONAL GUIDANCE—***Opposite page, top left:*** **F. S. Friel (center) receives the Philadelphia Chapter's award from A. H. Kidder, while Dr. James Creese, president, Drexel Institute of Technology, looks on.** ***Center left:*** **E. M. David (right) of Gilbert Associates, Inc., Reading, Pa., explains a model of a turbine generator foundation to visiting students Wm. Reichert, R. Reitenauer, R. Ebersole, and E. Kotsch.** ***Lower left:*** **Dean N. W. Dougherty of the University of Tennessee (center seated) and participants in a Knoxville TV program on career opportunities.** ***Top right:*** **Mayor A. A. Cobo of Detroit (seated) gives his proclamation to S. A. Walker, Jr.; others are N. Saulter, A. Braraducci, and G. C. Richards.** ***Center:*** **NSPE Executive Director P. H. Robbins watches Brig. Gen. Thomas A. Lane, District of Columbia Engineer Commissioner, present a proclamation to D. C. Society President F. L. Martin.** ***Lower right:*** **Mayor A. J. Celebrezze of Cleveland signs his proclamation while J. R. McKinney, L. D. Cleverly, H. F. Hindeman, and B. B. Farmer look on.**

This page, top left: **Mayor Charles P. Taft of Cincinnati proclaims the Week while J. W. Simonson, J. P. Quitter, S. B. Storer, and J. Edward Oetjen watch the signing.** ***Center:*** **At the Chicago proclamation ceremony, l. to r., are Wayne Wallace, Chapter President Alois Graf, NSPE Vice President V. E. Gunlock, and Mayor R. J. Daley.** ***Lower left:*** **Lewis Sforzini, NSPE President Neff, and Phil Kimmell, pose at a pre-Engineers' Week meeting of the Monroe County Chapter of the New York State SPE.** ***Top right:*** **A display appearing in the show window of the Lafayette Radio Company, Boston, Mass.** ***Center:*** **The Virginia proclamation presentation. L. to r. are E. H. Ruehl, J. C. Farley, G. H. Ruston, Governor Thomas B. Stanley, I. Russell Berkness, and P. E. Davis.** ***Lower right:*** **The master-plan map of the University of New Mexico campus displayed in Albuquerque during the annual meeting of the New Mexico SPE.**





Ohio Goes All Out

The Week received much special attention in Ohio. . . . Mayor Charles P. Taft proclaimed it in Cincinnati with a tribute to the members of the profession, and the *Cincinnati Enquirer* featured many pages of material on career opportunities in engineering. Ronald J. Rockwell, vice president and director of engineering, Crosley Broadcasting Corporation, was chosen "Engineer of the Year" there. . . . *The St. Lawrence Seaway and Its Impact on Cleveland's Future* was the subject of a panel discussion, a major TV program, sponsored by the Cleveland SPE, which also arranged radio broadcasts in the public interest during the Week.

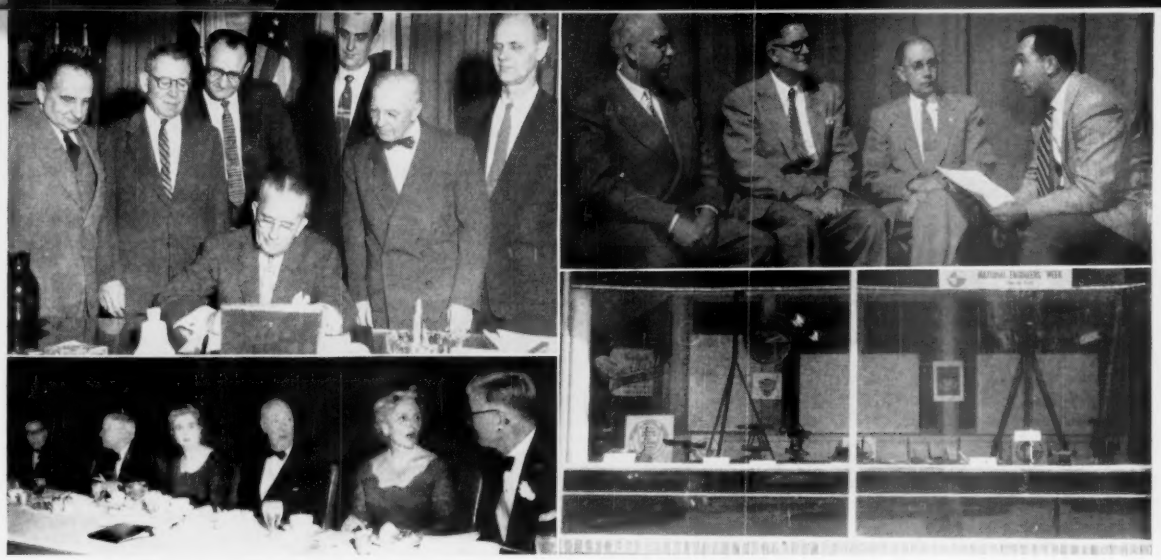
A display at the Youngstown Public Library, an interview with Dean E. C. Franklin of the William Rayen School of Engineering, Youngstown University, and a dinner-dance were among the events marking the observance sponsored by Mahoning Valley P.E.'s. . . . Franklin County Chapter members heard John W. Love, business editor of the Cleveland Press, speak on *Engineers in Economics* at their banquet in Columbus. . . . William C. Newberg, president of the Dodge Division of the Chrysler Corporation, was the speaker at the annual Engineers' Week banquet, attended by members of the Toledo Technical Council, that climaxed the Week in Toledo. Members of the Toledo Chapter of the OSPE also planned extensive radio and TV coverage and arranged to have fourteen major displays in the downtown area.

Oklahoma Was Busy

The Oklahoma observance was centered in Tulsa, where the OSPE held its annual meeting during the Week. In addition, a week-long program was sponsored by the Tulsa Chapter, and local businesses cooperated in preparing exhibits in line with the Engineers' Week theme. A highlight of the schedule was the weekly forum luncheon of the Tulsa Chamber of Commerce, which was devoted to a career counseling program for 410 high school students sponsored by the P.E.'s individually or by their companies. . . . Another major Oklahoma observance was that sponsored by the Bartlesville Chapter which sent its representatives to speak at the meetings of various civic clubs and sponsored outstanding displays in the schools and in the business area.

Pennsylvania Repeats Earlier Records

The various chapters of the Pennsylvania SPE once again arranged fine programs on the local level for the education of the general public. . . . The Pittsburgh Chapter, as part of its program, sponsored a TV panel discussion on engineering contributions to that city. . . . In Philadelphia, the week-long schedule of events, which began with the official public reading of Mayor Dilworth's proclamation on the 19th, was climaxed with the annual banquet at which Francis S. Friel, a prominent Philadelphia consultant, was given the chapter's citation as the year's outstanding engineer in the metropolitan area. . . . J. Carlton Ward, president of the Vitro Corporation, was the speaker at the banquet held in celebration of the Week in Harrisburg, in cooperation with the local section of the ASCE and the Engineers Society of Pennsylvania. . . . Members of the Reading Chapter concentrated their efforts on guidance programs for young people



THE PICTORIAL HISTORY CONTINUES—*Opposite page, top left:* This picture shows a display installed in the Gas Service Building, Wichita, Kansas, by the Kansas Turnpike Authority. *Center left:* Professor Mark B. Moore of Rutgers University's Mechanical Engineering Department explains a dynamometer to a group of students at the Engineers' Week Open House. *Lower left:* Mayor Nelson O. Howarth of Springfield, Ill., signs the proclamation while watched by Capital Chapter Engineers Arthur Kessell, Emmons Patterson, R. D. Collins, A. A. Thorsell, and L. D. Hudson. *Top right:* C. M. Perlman of Wisconsin's Southwest Chapter (second from left) talks to University of Wisconsin senior engineering students Weinauer, Perlman, and Hill. *Center:* A Corps of Engineers display set up in the South Station Concourse in Boston. *Lower right:* Governor Marvin Griffin of Georgia signs the 1956 proclamation as Wayne Waddell, Dr. J. W. Mason, and Robert J. J. Locatell look on.

***This page, top left:* Mayor Raymond R. Tucker of St. Louis signs that city's proclamation while Engineers Harvie, Rathell, Schemm, Hanson, Heard, and Carlson watch the ceremony. *Lower left:* Scene at the Houston, Texas, dinner honoring the San Jacinto Chapter's "Engineer of the Year," George R. Brown; l. to r. are Gilbert Leach, Mr. Brown, Mrs. Leach, Dr. William V. Houston of the Rice Institute, Mrs. Brown, and L. D. Snow. *Top right:* Shown here are participants in the radio panel discussion sponsored by the Rock River Chapter of the Illinois SPE. L. to r. are Harry Cordes, D. A. Branigan, E. V. Ellifrit, and John Shular, who arranged the program. *Lower right:* This display which was set up in Fairfax, Va., by G. Hubbard Massey of Massey Engineers, Consultants, shows the evolution of engineering instruments.**

interested in engineering as a career, with a tour of the offices of Gilbert Associates, Inc., arranged as the high spot by Donald L. Greene. . . . The Washington County Chapter sent its representatives to speak before student and civic groups and sponsored an explanatory radio broadcast as well as spot announcements. . . . The Northeast Chapter honored three outstanding high school students of the Wilkes-Barre area for their excellence in mathematics, in addition to sponsoring a tour of a local manufacturing plant by forty high school seniors.

Annual Meeting in Tennessee

The Annual Meeting of the Tennessee SPE was held in Knoxville at the Hotel Andrew Johnson as a climax to the Society's observance. NSPE Presidential Nominee Robert J. Rhinehart and Executive Director Paul H. Robbins were among the principal speakers. Emphasis of the program was on opportunities in engineering. . . . The Memphis Chapter played host to high school seniors, as well as area engineers, at a luncheon at which Dr. George Granger Brown, dean of engineering at the University of Michigan, was the guest speaker. Memphis also "kicked off" the Week with a special TV program entitled *Your Future Unlimited*.

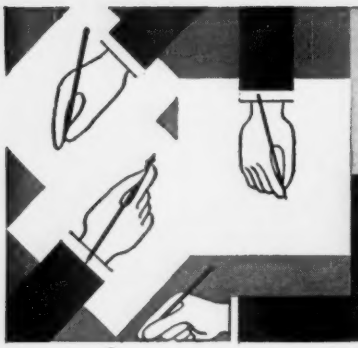
The Week in Texas

The Texas observance was in the usual tradition of the State with many important and outstanding events scheduled. . . . The Sabine Chapter sponsored radio programs and a special banquet in Beaumont. . . . The East Texas Chapter, meeting at the Carlton Hotel in Tyler, presented its "Engineer of the Year" award to H. J. McKenzie, president of the Cotton Belt Railroad, and heard him deliver a major address. Extensive newspaper coverage of the Week was also notable in the area. . . . The Gulf Coast Chapter arranged a program of special events in Brazoria and Matagorda Counties, particularly stressing career talks in the high schools of the area. . . . E. N. Noyes was the "Engineer of the Year" honored at the Nueces Chapter banquet in Corpus Christi, in which members of other area engineering societies also participated. W. R. Woolrich was the principal speaker. . . . The San Jacinto Chapter's "Engineer of the Year" was George R. Brown, vice president of Brown & Root, Inc., of Houston. . . . The Piney Woods Chapter held a special Engineers' Week meeting at the Angelina Hotel in Lufkin, at which H. T. Tellepsen, president of the Tellepsen Construction Company of Houston, was guest speaker.

Virginia, Washington, West Virginia Successes

The Joint Engineers' Dinner sponsored by the Richmond Chapter of the Virginia SPE in conjunction with other engineering groups was such a success that a reservation has already been entered at the John Marshall Hotel for a similar banquet observing the Week in 1957. . . . The Northern Virginia Chapter reported particular success with its display program in that area. . . . The Seattle Chapter of the Washington SPE organized a full Engineers' Week schedule with special emphasis on public service radio announcements during the observance. . . . Window displays in the headquarters cities of the fifteen chapters of the West Virginia Society were the order of the Week in that State, in addi-

(*Please turn to page* 46)



Professional POSTSCRIPTS

A recent issue of a newsletter released by the Worden & Risberg firm of Philadelphia carried a passage from an article by Harry A. Bullis entitled "The Future Belongs to the Educated Man," which originally appeared in *The Saturday Review*. Here it is and we think you'll find it of considerable interest.

—PP—

A highly educated man has been educated at two levels: first, he has a practical understanding of modern technology, is able to foresee its developments and their economic and sociological impact on modern society. Second, he has been tutored in humanistic values. His knowledge of history, economics, religions, sociology, and psychology must be so thorough that he can evaluate change in terms of continuing human progress rather than as a threat to human stability.

At the same time he must be so mentally flexible that he can avoid at all times the psychic shock that too often comes with changes. He must be able to accept new techniques and precedent-destroying discoveries without discarding the valid experiences of the past. Rather he must be able to re-examine historic contributions to human progress and relate them to current thinking and technological advance.

The ability constantly to reappraise the factors of civilization in terms of progress is the mark of the intellectually and emotionally mature man.

—PP—

Our next item is from the Westchester County Chapter, NYSSPE, monthly *Chapter News*, and reports on remarks made by James F. Fairman, vice president of the Consolidated Edison Co., at the time of his accepting an honorary membership in the American Institute of Electrical Engineers. We are pleased to print Engineer Fairman's remarks here. Further, for more on "unity" see pages 14 and 19 of this issue.

—PP—

"In my opinion, based on some 20 years of work and observation in that field, our principal obstacle is our concern for the mechanism of unity, the forms of organization. We exhaust ourselves in fruitless arguments about how to organize to do what needs doing when we should be concentrating our efforts on doing what needs doing. If we could only learn to cooperate individually and corporately, in working to attain some of the important objectives of the profession, I am convinced we would more quickly be able to devise the organization tools needed for effective accomplishment. We already possess reasonably good organization tools, but we too often let them rust for lack of use. Let's use them to the full and by their use learn how to design and forge better ones. One further caution, let's not waste time debating our objectives or what we mean by unity. Let's get at the obvious day-to-day problems and let the definitions and the long range plans evolve from experience and a better understanding of our really important problems.

"Let's not deceive ourselves that the answer lies in a more perfect organization and that it will function automatically. Rather let us realize that the job can only be done by individuals, working together in harmony.

"Let's work harder, especially at the grass roots and thereby lay a better foundation for unity at the national level."

—PP—

Combining daily life with the Golden Rule is not always easy but some people and organizations do well toward accomplishing this. To illustrate, the following short talk by Henry G. Waltemade, immediate past president of the National Association of Real Estate Boards, gives much food for thought. Mr. Waltemade's address was before the recent Communion Breakfast of the Brotherhood of St. Andrew. Mr. Waltemade:

—PP—

Your radio and TV bring you many stories in fact or fiction about today's businessman—the businessman as a seeker of success. When they show his material gain as an end in itself, then something is hollow and inadequate—either the story or the businessman.

For a businessman, no less than the subject of Wordsworth's verse, is

"A being breathing thoughtful
breath,
A traveler between life and
death . . ."

In moving along that limited span, a businessman quickly learns the first lesson of success—that it is not all his own doing, but derived from an inspiration and power beyond himself.

And so success is the subject of his humble gratitude . . . and more. It brings him the clear responsibility of using his success constructively in the light of his conscience.

Without this recognition of its source, without a consequent gratitude for it, without acceptance of the obligation to use it well, success—it seems to me—is unsatisfying and without reward, a meaningless accident. And that too holds true for the success of any artist, a statesman, a soldier, an educator or anyone else.

It is my firm opinion that there is probably more conscious effort on the part of American businessmen today than ever before to apply the values of our vigorous Christian heritage to everyday business activity.

This is a testimony, I think, not to

APRIL MEETINGS Of Note

American Society of Lubrication Engineers—Annual Meeting, April 4-6, William Penn Hotel, Pittsburgh, Pa.

American Chemical Society—National Meeting, April 8-13, Dallas, Texas.

American Management Association—National Packaging Conference, April 9-11, Convention Hall, Atlantic City, N. J.

Midwest Research Institute—Symposium for Management on Applications of Analog Computers, April 10-11, University of Kansas City, Kansas City, Mo.

Metal Powder Association — Annual Meeting, April 10-12, Hotel Cleveland, Cleveland, O.

Armour Research Foundation—National Industrial Research Conference on "Research for Profit," April 18-20, Illinois Institute of Technology, Chicago, Illinois.

Environmental Equipment Institute—Annual Meeting, April 19-20, Sheraton Hotel, Chicago, Ill.

Society for Advancement of Management and **American Society of Mechanical Engineers (Management Division)**—Annual Management Engineering Conference, April 26-27, Hotel Statler, New York City.

Association for Advanceemnt of Engineering (Virginia Polytechnic Institute)—Annual Engineering Conference, April 26-28, Tech Campus, Blacksburg, Va.

a strained compatibility between religion and business, but to a heightened sense of business responsibility in facing modern business problems that are essentially matters of justice.

The place of religion in business begins with an attitude toward one's calling that recognizes the human dignity that derives from the eternal destiny of man and the divine origin of the moral law. Religion has its rightful place in business when employer and employee, buyer and seller, producer and consumer, regard the human worth of each other as fellow seekers of a destiny that surpasses the material values of comfort, affluence, and power.

Perhaps a helpful formula for today's businessman in forming a conscientious attitude in the pursuit of his calling can be found in the advice of St. Augustine:

> "In necessary things, unity.
> In doubtful things, liberty.
> In all things, charity."

Just as there is of necessity conflict in professional life, in science, and in the arts, there is conflict in business. It may be the conflict that arises from honest and productive competition, or conflict in doubtful matters of equity in public policy. In any of these fields, differences of opinion or interest can be in good faith, well tempered, and charitable. There is no principle of good business that requires them to be selfish, unworthily motivated, or imputing unworthy motives to others.

The growing field of public relations as part of business management gives evidence of the earnest desire of business to make its decisions in justice and good faith and to be understood fully by the public.

A week ago a conference of public relations officers of leading American business organizations heard an excellent distinction made between good public relations and bad public relations. It was made by the distinguished businessman who has produced some of the finest films ever made, Cecil B. DeMille. Having just come from Mount Sinai where he has been producing "The Ten Commandments," he had just the right figure for the public relations men. He told them the difference was the difference between Aaron and Moses—Aaron who gave the public something phony and glittering, a golden calf, and Moses, who gave them the truth.

By today's business standards, a high regard for justice is good business. I do not mean that in a cynical sense. Business regard for the eternal values is not simply a cash register consideration. That would not explain the business statesmanship that has built greater security for the worker and greater value for the buyer, for the many programs of public benefit that have become almost characteristic functions of business.

Many organizations and businessmen pay lip service to the Golden Rule — "Whatsoever ye would that men should do unto you, even so do ye also unto them."

The National Association of Real Estate Boards, however, has taken this admonition so seriously that it is incorporated verbatim in its Code of Ethics to which all of the 57,000 realtors subscribe.

I am proud that my organization saw fit years ago to turn to the Bible for this verse on which to base its whole code of business conduct.

As a way of re-emphasizing this high business code to which realtors subscribe, our Association last year adopted a Realtor's Pledge—a summary of the ideals toward which they constantly strive. In stirring public assemblies during recent months, real estate boards throughout the country have conducted rededication ceremonies in which all members stood and recited in unison the following Pledge:

I Am a Realtor

I Pledge Myself

To protect the individual right of real estate ownership and to widen the opportunity to enjoy it;

To be honorable and honest in all dealings;

To seek better to represent my clients by building my knowledge and competence;

To act fairly towards all in the spirit of the Golden Rule;

To serve well my community, and through it my country;

To observe the Realtor's Code of Ethics and conform my conduct to its lofty ideals.

To some of the cynics in the business world, this may have been written off as a lot of "corn." But to me and the vast majority who were present for these ceremonies, it was a moving and inspiring event—and one which I feel made a deep and lasting impression.

To me this Realtor's Pledge is a simple but effective way of reminding businessmen of their obligations and carrying the message which we so often hear in church on Sunday into our everyday endeavors.

And I don't think any of us will argue about the need of remembering the spiritual guidance of Sunday on Monday through Saturday as we struggle in this materialistic world, and a prayer of thanksgiving for the many blessings bestowed upon us in our everyday life as well as our business life.

You know, many of us today become so involved and busy in our everyday business life or other extra-curricular activities or as a matter of fact, think we are, that sometimes we neglect our Church, occasionally miss

(Continued on page 39)

Illinois Society of Professional Engineers — Annual Meeting, April 12-14, 1956, Morrane Hotel, Highland Park, Ill.

Florida Engineering Society—Annual Meeting, April 25-28, 1956, Pennsylvania Hotel, West Palm Beach, Florida.

Indiana Society of Professional Engineers — Annual Meeting, April 27-28, 1956, Van Orman Hotel, Ft. Wayne, Ind.

Pennsylvania Society of Professional Engineers—Annual Meeting, May 11-12, 1956, Yorktowne Hotel, York, Pa.

Maryland Society of Professional Engineers—Annual Meeting, May 15, 1956, Park Plaza Hotel, Baltimore, Maryland.

New York State Society of Professional Engineers—Annual Meeting, May 17-19, 1956, Statler Hotel, New York, N. Y.

Massachusetts Society of Professional Engineers — Annual Meeting, May 19, 1956, Boston, Mass.

New Jersey Society of Professional Engineers—Annual Meeting, May 24-26, 1956, Ambassador Hotel, Atlantic City, N. J.

NSPE Annual Meeting — May 24-26, 1956, Ambassador Hotel, Atlantic City, N. J.

District of Columbia Society of Professional Engineers — Annual Meeting, May 29, 1956, Cosmos Club, Washington, D. C.

California Society of Professional Engineers—Annual Meeting, May 31-June 2, 1956, Modesto, Calif.

Georgia Society of Professional Engineers—Summer Meeting, June 1, 2, 1956, Dempsey Hotel, Macon, Ga.

Michigan Society of Professional Engineers — Annual Meeting, June 7-9, 1956, Detroit Leland Hotel, Detroit, Mich.

Utah Society of Professional Engineers—Annual Meeting—June 27, 1956, Brighton Resort, Salt Lake City, Utah.

NSPE Fall Meeting — October 25-26, 1956, The Greenbrier, White Sulphur Springs, W. Va.

West Virginia Society of Professional Engineers—Annual Meeting, October 25-26, 1956, The Greenbrier, White Sulphur Springs, W. Va.

North Dakota Society of Professional Engineers—Annual Meeting, November 2-3, 1956, Grand Forks, N. D.

Atlantic City Meet to Feature Set of Professional Confabs

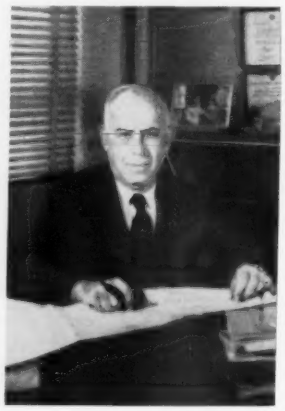
Engineers from throughout the country will be converging on Atlantic City, New Jersey, late in May as the 1956 Annual Meeting of the National Society of Professional Engineers gets under way at the Ambassador Hotel. Scheduled for May 24-26, the meeting will be held in conjunction with the Annual Convention of the New Jersey SPE, whose members will serve as hosts for the three-day event. Host chapters are the Mercer County Chapter and the Engineering Society of Southern Jersey.

A highlight of the meeting will be the set of professional conferences dealing with the concerns of four particular groups—Engineers in Industry, Engineers in Government, Consulting Engineers, and Engineers in Education. The first three conferences will be held simultaneously on the morning of Friday, May 25. The conference on engineers in education has been scheduled by general request for the afternoon of the 25th so that it will be possible for all to attend, since the problems of engineering education are regarded as an important area of concern for each member of the profession.

Names of the speakers participating in the engineers in government and consulting conferences have yet to be announced.

Those attending the seminar on engineers in industry will hear presentations expressing both the employee-engineer and engineer-manager points of view in relation to various industrial problems. H. P. Cooper of Lake Jackson, Texas, a design engineer with the Texas Division of The Dow Chemical Company in Freeport, and E. E. George of Little Rock, Arkansas, an engineer with Ebasco Services, Inc., will present the employee-engineer papers. G. W. McCullough, vice president, Phillips Petroleum Company, Bartlesville, Oklahoma, will give the viewpoint of the engineering executive. The name of the other engineer-administrator participant is to be announced shortly.

One feature of the education conference will be the presentation of three reports on outstanding activities in the educational field. They will be made by J. W. Whittemore, dean of engineering and architecture at Virginia Polytechnic Institute; Glenn Ernsberger, president of the Student Council which is organized under the auspices of the Ohio Society of Professional Engineers, and Leland S. Hobson, chairman of the Young Engineers Committee of NSPE and associate director of the Engineering Experiment Station, Kansas State College, Manhattan, Kansas.



Mr. Morris Goodkind

The first day of the Annual Meeting will include the traditional regional luncheons, presided over by the respective NSPE vice presidents. Maynard M. Boring, president of the American Society for Engineering Education, will be the featured speaker at the Friday luncheon, while G. Donald Kennedy, president of the Portland Cement Association, will address the general luncheon on Saturday, the 26th.

The New Jersey SPE will present its two annual awards at a special dinner on Friday evening. Recipient of the Annual Engineering Award will be Morris Goodkind, a nationally known bridge engineer. The NJSPE Citizen's Award will go to Carl Keuffel, president of the precision instrument firm of Keuffel & Esser.

The NSPE Award for 1956 will be presented during the final banquet, Saturday, May 26. Announcement of the name of the engineer to be given the National Society's highest honor will be made at an early date by T. Carr Forrest, Jr., chairman of the Awards Committee. Past recipients have included D. B. Steinman, Herbert Hoover, Charles F. Kettering, Harry A. Winne, and A. A. Potter.

At the banquet, the incoming 1956-57 NSPE officers will also be introduced to the membership and installation ceremonies will be held, although the actual administrative change will not become effective until July 1. The 1956-57 slate is headed by Robert J. Rhinehart as president-elect.

The program of the Annual Meeting will also include the usual professional sessions and discussions. Members of the NSPE Board of Directors will assemble on the evening of May 23, the day prior to the official inauguration of the general meeting, for a private dinner, after which they will convene in a special session to hear and consider preliminary reports. The Executive Committee will also hold its usual pre-meeting conference on the 23rd.

There will be a number of outstanding industrial exhibits on display in conjunction with the meeting. Also, a special social program is being arranged for the ladies.

For Fun and Profit, Come to tla

Send in This Reservation Coupon ow!

Dougherty

(*Continued from page 22*)

in their field in order that they become even more individual. During the last five decades their numbers have increased exponentially and their activities have become very diverse. Their varied individuality has added to their problems of unity and has caused many to stumble in their professionalism.

The lawyers and the doctors organized blanket societies before they organized specialized branches of their general associations. Engineers went at it the other way; they organized their individual branches, then they sought a blanket or professional organization. First loyalties have been to the branches and not to the general organization. This may continue until a major problem forces unified action. We have had some problems, but they have been solved in diversity rather than in unity. At this time it is difficult to prophesy whether the unity organization will be a federation or a society of individual members. So many of the characteristics of professionalism are individual and intangible that it is difficult for a national organization to promote them. I say this with the full knowledge of the excellent results which have been accomplished by Engineers' Council for Professional Development and the fine work done by NSPE.

The greatest threat to professionalism is collectivism. A profession which takes great pride in its individualism is flirting with collectivism which undertakes to level off the individual differences. When compensation is fixed by seniority rather than ability; when working hours are determined by agreement rather than need of the task; when promotion is fixed by seniority rather than worth we will be longing for the day of individual effort rather than group pressures.

Some have suggested that engineers are attempting the impossible. They are trying to make professionals out of workers who are not doing professional tasks. This attitude was expressed by a labor leader:[8]

> The trouble with you engineers is that you fancy yourselves professional men. Actually, you are just hired help.

In some group situations engineers take on the nature of routine employees, but my plea is that they hold to their professional attitudes.

Mr. Hendricks, business manager of the Seattle Professional Engineering Employees Association, has said:[9]

> We have already lost our professional status. Engineers . . . have observed the loss of professional status and the rise of collective bargaining at the same time. They have assumed that the rise of collective bargaining caused the loss of professional status, but they have mistaken the chicken for the egg. The loss of professional status created collective bargaining, not the reverse.

I am inclined to the belief that there are working conditions which do tend to collective bargaining and that it is the duty of engineers and employers to remedy these conditions. Every engineering society should add an item to its code of ethics or rules of practice: "The professional employer must consider himself the advocate of his professional employees."

We have already suggested that engineering as a business is departing from the professional concept. It comes about when we mix engineering with contracting or operations. A partial solution may be achieved by requiring for corporate practice that all the principals be registered professional engineers rather than businessmen, accountants or attorneys.

Professionalism is not lip service to the canons of ethics. It is being and becoming individuals who live by the canons and who will not discard their individualism either for an organization of their own, or for an organization which will try to dictate their every action.

I MUST close by quoting from the *Faith of the Engineer*:[10]

> Since the Age of Stone, human progress has been conditioned by the genius of my professional forebears. By them have been rendered usable to mankind Nature's vast resources of materials and energy. By them have been vitalized and turned to practical account the principles of science and the revelations of technology. Except for this heritage of accumulated experience, my efforts would be feeble. I dedicate myself to the dissemination of engineering knowledge, and especially to the instruction of the younger members of my profession in all its arts and traditions.
>
> To my fellows I pledge, in the same full measure I ask of them, integrity and fair dealing, tolerance and respect, and devotion to standards and dignity of our profession; with the consciousness always, that our special expertness carries with it the obligation to serve humanity with complete sincerity.—***End.***

[8] *A Professional Look at the Engineer in Industry*, NSPE.
[9] *Northwest Professional Engineer*, October-December, 1954.
[10] ECPD Annual Proceedings.

to tlantic City
pon ow!
→ →

Reservation Rate Memo The Ambassador ATLANTIC CITY

PLEASE MAKE MY RESERVATIONS AS CHECKED BELOW:
22nd NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
32nd NEW JERSEY SOCIETY OF PROFESSIONAL ENGINEERS
CONVENTION AND EXHIBITION • MAY 24, 25, 26, 1956

Please reserve.....room(s) at the rate of $.....per day, and acknowledge to:

Name .....

Address .....City .....State .....

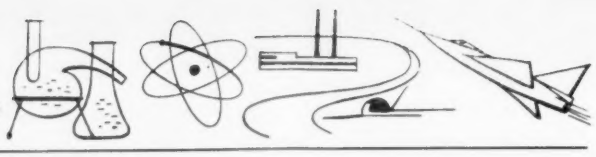
EUROPEAN PLAN—DAILY RATES—ROOMS WITH TWIN BEDS & PRIVATE BATHS

Single, 1 person	☐ $ 6.	☐ $ 8.	☐ $10.	☐ $12.	☐ $14.	
Double, 2 persons	☐ $ 8.	☐ $10.	☐ $12.	☐ $14.	☐ $16.	☐ $18.
Parlor—1 Double with Bath		☐ $20.	☐ $28.	☐ $36.		
Combinations—2 Doubles—1 Bath			☐ $16.	☐ $20.	☐ $28.	

Date of Arrival.....Date of Departure.....

ALL RESERVATIONS WILL BE ACKNOWLEDGED

NEW Processes . . .



Radiant Heated Storage Tanks Have Cellular Glass Insulation

A unique method of heating tanks is one of the construction features of the Port of Seattle's just-opened tank farm for non-petroleum oils.

The $300,000 plant, one of the most modern of its kind in the country, consists of 24 steel storage tanks varying in capacity from 25,000 gallons to 210,000 gallons. Total storage capacity is 2,453,600 gallons or 58,420 barrels. Fish oils, tallow, tung oil, linseed oil and other vegetable oils will be handled. Five existing tanks for molasses storage, with a capacity of 2,100,000 gallons, bring the total storage to over 4½ million gallons.

In order to heat the oils for pumping, hot water coils were placed under the tanks, as opposed to the usual procedure of placing coils in the tank. However, to prevent heat loss from the coils through the concrete foundation it was necessary to insulate under the tanks. The insulation had to have sufficient compressive strength to withstand the weight of the tanks and their loads. In addition, since it would be a difficult task to replace ineffective insulation, the insulation had to be impervious to any moisture.

Blocks of cellular glass insulation being installed on foundations for tanks in new Port of Seattle tank farm.

The insulation chosen was FOAMGLAS cellular glass insulation, a product of the Pittsburgh Corning Corporation. With a compressive strength of 7 tons per square foot, it easily withstands the weights involved.

The insulation was applied over the concrete slab foundation using hot asphalt as adhesive. Roofing felts were mopped in place over the cellular glass blocks. Hot water coils were then installed and covered with a concrete grout.

Strontium Determination In Cement

The National Bureau of Standards has developed methods for the flame-photometric determination of strontium and manganese in cements. J. J. Diamond of the Bureau's concreting materials laboratory has shown that SrO and Mn_2O_3 contents may be rapidly and accurately determined on the same cement sample used to determine the alkalies.

These methods were developed as part of a continuing NBS program to apply modern instrumental techniques to the determination of the minor constituents of cement, that is, those present in amounts less than one per cent.

It is customary to assume that cement contains some strontium. However, little or no information on the subject has been available because the applicable methods for the determination of strontium in the presence of a thousand times as much calcium were difficult and unreliable. The flame photometer was selected as the research instrument in this work since it has been used to determine strontium in other substances and was established as a standard instrument for the determination of the alkalies in cement. While the determination of manganese in cement has not been as difficult, since the volumetric "permanganate" and "bismuthate" methods are available, it seemed desirable to use the more rapid and equally accurate flame photometry for manganese too, if possible. One advantage of the flame-photometric method is that it does not require previous chemical separation of the substance to be studied. All determinations can be made on the same one-gram sample of cement, dissolved in hydrochloric acid and filtered to remove any insoluble material.

The cements were studied on a standard spectrophotometer with a flame photometer attachment, an oxy-hydrogen burner, and a photomultiplier attachment. Experiments with pure solutions indicate that peaks in the emission of strontium occur at about 461 and 675 mμ. However, since the instrument is more sensitive at 461 mμ, and since there is less interference from calcium at that wavelength, 461 mμ was selected for the determinations.

Toll System Works While Vehicles Are In Motion

The steady beam of an electronic eye is a key feature of a new toll collection and audit system developed by the International Business Machine Corporation and installed on the recently completed Ohio Turnpike.

At all interchanges and terminal points along the new expressway, the system both weighs and classifies the vehicles automatically. The system operates while the cars and trucks are in motion — even when following bumper to bumper.

A photoelectric eye system, developed by the General Electric Company, automatically counts the number of axles per vehicle. Weight per axle is determined by a specially designed treadle built into the pavement of the traffic lane.

Vehicles are classified according to individual axle weights, added together.

It works like this:

An attendant inserts a fare card into a toll recorder, determines by looking at the passing car or truck how many axles it has, and pushes the appropriate key on the recorder.

Pushing the proper key automatically totals the individual axle weights. It also registers the vehicle's classification on the fare card—along with other necessary information.

When the attendant pushes the key, an "axle group indicator" on top of the toll recorder has already received the correct information as to the number of axles from the General Electric photoelectric system. Should the wrong key be punched, the axle group recorder lights up and tells the attendant the correct number of axles and at the same time locks to prevent improper validation of the fare cards.

The fare card is given to the vehicle operator who presents it at the exit gate, along with his toll.

The system automatically reweighs the vehicle at the exit interchange and compares the weight class punched by the entrance recorder with the class as determined by the exit classifier. The equipment also reads the number of axles and the time punched by the entrance recorder.

All weighing and counting operations are performed while the vehicles are in motion.

Penn.-SPE Pioneers Progress Report Program

The Pennsylvania SPE has scheduled a day-long meeting for April 28 on the University of Pennsylvania campus in Philadelphia as an experiment in bringing to interested engineers the latest information in new engineering advances. The "briefing" conference is planned for the instruction of engineers who have been out of school ten years or longer and has the cooperation of area technical societies, as well as the University of

Adm. Spangler

Pennsylvania, Penn State University, Drexel Institute of Technology, and Villanova University.

In addition, representatives of the Philadelphia, Bucks County, Valley Forge, and Delaware County Chapters participated in planning the program after the project was approved by the PSPE Board of Directors. The idea for the conference originated with W. B. D. Harris, past president of the Bucks County Chapter.

A special highlight of the conference will be the luncheon, held at a nearby hotel, at which Rear Admiral Selden B. Spangler, now in command of the newly-established Naval Air Development and Material Center at Johnsville, Pennsylvania, will be the guest speaker. Admiral Spangler, who holds a master's degree from M.I.T., is well known in engineering and aviation circles.

The subjects to be covered during the conference periods include: Atomic Energy, Solid State, Instrumentation and Servo Mechanisms, Computers, Catalytic Processes and Soil Mechanics. Each person attending the conference will have the opportunity to attend the seminars on two subjects of his choice. Prominent men from each field will take part in panel discussions on the pertinent topics under the leadership of distinguished moderators. There will also be a number of individual speeches.

The Pennsylvania Society has announced that engineers from neighboring states and state societies are welcome to attend, providing that they make advance reservations by writing to the PSPE at 228 N. Second Street, Harrisburg, Pennsylvania. There will be a small registration fee charged.

—PP—

(*Continued from page 35*)

services not because of a lessening interest but it just seems to be the easier thing to do.

As a case in point, my National Association that I have referred to conducts a convention, the most recent one just held here in New York at which more than 5,000 were in attendance and two additional meetings at which just under a thousand attended, each year around the country, on which occasion the Directors and Executive Committees and other educational panels meet, and up to this year, has always felt that its crowded schedule necessitated Sunday morning meetings.

When I assumed the office of president, my first official act was to ban all Sunday morning meetings, thereby affording the members and staff who desired to, an opportunity to attend their church. We have completed our work and I have received the commendation of thousands for this action.

If I have contributed nothing more to our organization and its membership during this year, I am satisfied and feel that this has been well worthwhile.

Now, in conclusion, let us as business and professional men, yes you boys and young men too, who are the business and professional men of tomorrow, ever be grateful for the privilege of following our chosen field of endeavor in a country where opportunity is unlimited.

Let us always be mindful of the fact that every privilege and opportunity carries with it a responsibility, a responsibility as businessmen to be active workers in our Churches, Mission Boards, Hospitals, Orphanages and other affiliated work of the Church and not just "sponsors" willing to lend our name to worthwhile projects.

ATTENTION!

The National Society of Professional Engineers is now located in its new Headquarters Building in the Nation's Capital. Please change your records *now* to reflect this new information:

Address:

2029 K Street, N.W., Washington 6, D. C.

Telephone:

MEtropolitan 8-6112

NSPE Committee Heads

Professional Practice Group

Employment Practices—R. A. Blackburn, P.E., 3110 Koppers Building, Pittsburgh, Pa.

Engineering Practices—John B. McGaughy, P.E., 220 W. Freemason Street, Norfolk, Va.

Ethical Practices—Otto H. Hall, P.E., 1414 Sunnyside, Lansing 10, Mich.

Board of Ethical Review—George E. Ekblaw, P.E., 511 W. Main Street, Urbana, Ill.

Operating and Services Group

Constitution and Bylaws—W. E. Christian, P.E., Netherwood Ave., Box 215, R. D. 24, New Brunswick, N. J.

Budget—Warner Howe, P.E., 76 Porter Building, Memphis, Tenn.

Insurance and Retirement—Alan G. Stanford, P.E., 96 Poplar Street, N.W., Atlanta, Ga.

Reserve Fund—A. C. Neff, P.E., P. O. Box 170, Middletown, Ohio.

Legislation—Harry Kennedy, P.E., 1307 Kanawha Valley Building, Charleston, W. Va.

Nominating—T. Carr Forrest, Jr., P.E., 803 Praetorian Building, Dallas, Tex.

Resolutions—C. Arnold Dutton, P.E., 75 W. Mohawk Street, Buffalo 2, N. Y.

Education and Professional Development Group

Education—Robert B. Rice, P.E., P. O. Box 5131, Raleigh, N. C.

Registration—R. J. Rhinehart, P.E., P. O. Box 57, Pine Bluff, Ark.

Young Engineers—Leland Hobson, P.E., Kansas State College Exp. Sta., Manhattan, Kan.

Public Relations Group

Awards—T. Carr Forrest, Jr., P.E., 803 Praetorian Building, Dallas, Tex.

National Affairs—M. Frank Wooten, Jr., P.E., 215 Latta Arcade, Charlotte, N. C.

National Defense—Moses Cox, P.E., 114 Marietta Street, N.W., Atlanta, Ga.

Public Relations—Dr. Anatole R. Gruehr, P.E., 99 Livingston Street, Brooklyn 1, N. Y.

Activities Group

Chapter Activities—Donald C. Peters, P.E., R. D. 1, Pearce Mill Road, Wexford, Pa.

Publications—V. F. Waters, P.E., 75 Third Street, N.W., Atlanta, Ga.

Membership—Trigg Twichell, P.E., 302 W. 15th St., Austin 14, Tex.

Interprofessional Relations Group

Interprofessional Relations—R. A. Freese, P.E., 1229 Ramona Ave., Cleveland 7, Ohio.

Inter-Society Relations—Ben G. Elliott, P.E., 2302 Commonwealth Ave., Madison 5, Wisc.

Liaison with EJC—John D. Coleman, P.E., 2520 Elsmere Ave., Dayton, Ohio.

ECPD-NSPE Relations—R. L. Sweigert, P.E., Dean, Graduate Division, Georgia Institute of Technology, Atlanta, Ga.

STRICTLY BUSINESS

Personalities . . . **William P. Downey** has been promoted to the position of supervising engineer of the **Hyster Company's** "Straddle Truck" Division, Portland, Ore., according to **Al Zwald,** chief engineer. . . . The New York consulting firm of **Seelye Stevenson Value & Knecht** has announced that **Samuel C. Bast,** supervising structural engineer, has been made an associate of the firm. . . . The appointment of **W. J. Cherones** to the newly-created position of manager of electrical engineering has been announced by the **Harnischfeger Corporation** of Milwaukee. . . . The appointment of **Dr. Herbert Trotter, Jr.,** as vice president of engineering and research for **The Sharples Corporation,** Philadelphia, Pa., has been announced by **P. T. Sharples,** chairman of the board. . . . **Dr. Hal B. H. Cooper** has joined **American Potash & Chemical Corporation,** Los Angeles, in the newly-created post of director of development engineering according to **Dan S. Dinsmoor,** vice president of research and development. . . . Appointment of **Frederick M. Rutledge** as chief control engineer and of **Crayton H. Schwestka** as chief design engineer for **The Hays Corporation,** Michigan City, Ind., has been announced by **Phil Sprague, Jr.,** executive vice president.

Mr. Downey

North American Aviation, Inc. of Los Angeles has announced the following appointments in its new Autonetics Division at Downey, Calif.: **Dr. D. B. Duncan,** assistant chief of the Guidance Section; **Stanley D. Zemansky,** assistant to the general manager; and **Dr. Norman F. Parker,** assistant chief engineer. . . . **Harry E. Seifert,** formerly director of the Bureau of Industrial Hygiene of the Virginia Department of Health, has been named to head the new Process Engineering Division of the **Southern Lightweight Aggregate Corporation,** Richmond. . . . **Walter B. Morton** has recently been promoted from assistant electrical engineer to electrical engineer in charge of the Electrical Engineering Department of the **Pennsylvania Power & Light Company,** Allentown. . . . The appointment of **Ernest W. Bush** as industrial engineer at **Flexible Tubing Corporation,** Guilford, Conn., has been announced by **Frederick K. Dagget,** president. . . . **Daniel J. Weiner** has recently rejoined the staff of **Haskins, Riddle & Sharp,** Kansas City, Mo., consultants, after a two-year tour of duty with the United States Public Health Service in Southeast Asia where he was headquartered in Saigon.

Mr. Seifert

Wilbur E. Kelley, former manager of the New York Operations Office of the U. S. Atomic Energy Commission, has been elected president of **Walter Kidde Nuclear Laboratories, Inc.,** Garden City, L. I. . . . Following his retirement from the Army, on May 1st, **General Anthony C. McAuliffe** will join the **American Cyanamid Company,** New York City, as head of the newly-established Engineering and Construction Division. . . . **The Master Builders Co.,** Cleveland, O., subsidiary of the **American-Marietta Co.,** has announced the election of **Stephen W. Benedict** as vice president of research and engineering, the elevation of **Herbert K. Cook** to director of engineering, the appointment of **Thomas M. Kelly** as director of research, and the addition to the staff of **Perry H. Petersen** as assistant director of engineering. . . . **Raymond Stevens** has been elected president of **Arthur D. Little, Inc.,** Cambridge, Mass., succeeding **Earl P. Stevenson,** who is now chairman of the board. . . . **James M. Klaasse** has been named chief engineer of the **American Instrument Company, Inc.,** Silver Spring, Md.

Operational Expansion . . . **Frederic R. Harris, Inc.,** Consulting Engineers, of 27 William Street, New York City, has announced the opening of a branch office at 1915 Tulane Avenue in New Orleans. The office will be in the charge of **Eugene H. Harlow,** a vice president of the consulting firm . . . **Charles W. Stickler, Jr.,** president of **Manu-Mine Research and Development Company** of Reading, Pa., has announced the opening of a western division office in San Francisco for the geological engineering and soil stabilization firm. The new office in the Equitable Life Building will be under the direction of **Chester R. Wood,** former deputy chief engineer for the City of Vallejo, Calif.

New Firms . . . **Herman H. Rappaport** has announced the formation of the **Rappaport Construction Company** with temporary headquarters in Torrance, Calif., following his resignation as engineering construction manager of factory construction for **McDonald Brothers.** Mr. Rappaport's new firm has been organized to serve heavy industry in construction involving reinforced concrete and mechanical engineering projects. . . . The recent formation of two new companies—**Taylor Devices, Inc.,** a manufacturing company, and **Tayco Developments, Inc.,** a research firm, both headquartered at 188 Main St., North Tonawanda, N. Y.—has been announced by **Paul H. Taylor.** Mr. Taylor is president of both new firms which will manufacture and develop compressible material devices under the trade names of Liqui Springs and Liqui Spring Shoks.

Reorganization and Changes . . . The firm of **W. D. Broyles, Consulting Engineers** of Baytown, Tex., has announced the formation of a partnership with **Albert S. Bynum.** The firm name has, therefore, been changed to **Broyles and Bynum, Consulting Engineers.** . . . The **General Electric Company** has announced plans to establish headquarters in San Jose, Calif., for its Atomic Power Equipment Department, which will employ more than 500 persons by the end of 1956. The new department, which was established in March, 1955, has been temporarily located in Schenectady, N. Y. **Willard A. Kitts** is acting general manager.

With Our Members . . .

Iowa Engineering Society

First Convention Since Joining NSPE Is Held During Engineers' Week

The sixty-seventh annual meeting of the Iowa Engineering Society, and the first since the Society's affiliation with NSPE, was held on February 28 and 29 in Des Moines. Presentation of the Society's charter of affiliation was one of the highlights of the convention, with NSPE President Allison C. Neff making the presentation and delivering a brief address.

Meetings of local sections of the Founder Societies were also held in conjunction with the IES conference, and the two days included a full schedule of both professional and technical discussions. A general professional session on the 28th was devoted to the theme, "Education and the Development of the Engineer." A similar session on the 29th was concerned with "Utilization of the Engineer in Industry and Management."

Waldo W. Wegner of Cedar Rapids was installed as president of the Iowa Society, while Leslie M. Clauson of Ames was chosen as president-elect. H. Sidwell Smith of Muscatine was elected vice president, and Jack A. Sayre of Des Moines was elected treasurer. A. F. Faul of Des Moines was reappointed secretary. Outgoing President R. S. Stover became a director, as did O. W. Zack.

The IES' John Dunlap Award, presented annually for an outstanding paper published in *The Exponent*, the Society's magazine, was given to Mr. Smith, the new vice president.

Scholarship Honors Late Joe Butler

The Missouri School of Mines Alumni Association has established a continuing freshman scholarship, in the amount of $500 annually, to be known as "The Joe B. Butler Scholarship in Civil Engineering." The scholarship memorializes the late Professor Joe B. Butler, who was a member of the faculty at the School of Mines for thirty-five years and was, at the time of his death, chairman of the Department of Civil Engineering.

Professor Butler was also extremely active in professional circles. He organized the Missouri Society of Professional Engineers and served as its first president. He was also noted for his MSPE and NSPE membership activities.

The Alumni Association is underwriting the scholarship and is also accepting contributions toward it from Professor Butler's friends.

NYSSPE To Give Awards

General Omar N. Bradley and Vincent G. Terenzio, the latter of the New York City Board of Water Supply, will be the recipients of the New York State SPE's awards for distinguished service to the engineering profession. The awards will be presented during the Society's annual convention, scheduled for the Statler Hotel in New York City, May 17-19.

In conjunction with the meeting, the NYSSPE will also sponsor its 30th Engineering Industries Exposition.

A Banquet in Chicago

The Chicago Chapter of the Illinois SPE held its second annual banquet recently at the Bismark Hotel. Among the nearly 200 guests were those pictured above. Seated, left to right, are: Mrs. A. W. Graf; A. W. Graf, then president-elect; Mrs. George L. DeMent; George L. DeMent, national director; Mrs. John G. Duba; John G. Duba, incoming vice president.

Standing are: Rev. W. Stanley Sommerschield, pastor, Bethel Baptist Church, Detroit; Mrs. V. E. Gunlock; NSPE Vice President V. E. Gunlock; Mrs. H. F. Sommerschield; H. S. Sommerschield, outgoing president; Mrs. A. Allan Bates; Dr. A. Allan Bates, vice president, Portland Cement Association, and speaker of the evening; Mrs. F. W. Edwards, and F. W. Edwards, toastmaster.

Conn. Auxiliary Ladies On TV Program

Word has been received from the Women's Auxiliary to the Connecticut Society of Professional Engineers that on March 1st Mrs. Ray D. Edwards, Jr., president, and Mrs. Morton Fine, first vice president, appeared on a ten-minute television program on behalf of their organization.

The telecast was sponsored by the New Britain Broadcasting Company on station WKNB. It consisted of a discussion between the auxiliary officers and the master of ceremonies of the program, which has been featuring the activities of various women's groups.

The script was prepared by the auxiliary, and during the course of the program Mrs. Edwards and Mrs. Fine explained the purpose of the Women's Auxiliary, outlined the area of professional service of the Connecticut SPE, defined the term, "Professional Engineer," and answered various other questions.

One outstanding project of the auxiliary, which was described during the telecast, is the awarding of a scholarship each year to a woman in engineering. The scholarship is limited to a junior or senior studying engineering in a Connecticut College, and is presented to the winner during the CSPE's Engineers' Week dinner.

New Chapter Is Chartered In Michigan

In a recent meeting at the Lochmoor Club, the Lake St. Clair Chapter was chartered as the fifteenth local affiliate of the Michigan Society of Professional Engineers. Don Trefry, newly installed president of the chapter, received the charter from Wesley Bintz, a past president of the MSPE.

Other chapter officers are Frank Tousley, vice president, and Chester Ordon, secretary-treasurer.

Fifty-nine registered engineers and their ladies attended the charter and installation ceremony. Speaker of the evening was Lahmann Dunn.

. . . *more news on page 43*

PROFESSIONAL DIRECTORY

KIRK & COWIN

Ralph E. Kirk—Percy G. Cowin
Consulting—Appraisals—Reports
Registered Professional Engineers

One-18th Street, SW Birmingham, Alabama
Phone 56-5566

PALMER AND BAKER, INC.

Consulting Engineers — Architects

Surveys, Reports, Design, Supervision, Consultation, Traffic Problems, Tunnels, Bridges, Highways, Airports, Industrial Buildings, Waterfront & Harbor Structures, Complete Soils, Materials & Chemical Laboratories.

Mobile, Ala. **New Orleans, La.**
Harvey, Louisiana

A. W. WILLIAMS INSPECTION CO.

Mobile, Ala.
Established 1921

Inspection—Tests—Analyses
Sampling
Foundation Investigations
Representatives throughout U.S.A.
Member A.C.I.L.

KAISER ENGINEERS

Division of Henry J. Kaiser Company

ENGINEERS — CONTRACTORS

1924 Broadway, Oakland 12, California

SVERDRUP & PARCEL, INC.

Consulting Engineers

Bridges—Structures—Highways
Industrial and Power Plant
Engineering

915 Olive Street, St. Louis 1, Mo.
417 Montgomery St., San Francisco, Calif.

GEORGE V. R. MULLIGAN, P.E.

Management Consultant

Operation Analysis
Manpower Utilization
Management Controls

601-19th Street, N.W. **Washington, D. C.**

CONWELL LUCAS

Geologists — Engineers

Seismic Exploration
Dams — Tunnels — Power Plants
Ground Water Hydrology

1773 Williams Street **Denver 18, Colorado**

SOUTH FLORIDA TEST SERVICE

Testing—Inspection—Research—Engineers

Consultants and specialists in corrosion, weathering and sunlight testing.

4301 N.W. 7th Street **Miami 34, Florida**

Member A. C. I. L.

LAW—BARROW—AGEE LABORATORIES, INC.

Foundation
Investigations

Physical & Chemical Testing

Main Laboratories: Atlanta, Ga.
Charlotte, N. C., Albany, Ga., Tampa, Fla.

MERRITT & WELKER

Engineers

Water Systems — Natural Gas Systems
Sewer Systems — Streets & Roads

Marietta, Georgia

ROBERT AND COMPANY ASSOCIATES

Consulting and Designing Engineers

Industrial Plants—Municipal, Highway and Airport Improvements — Power Plants — Water Supply — Sewage and Industrial Waste Disposal — Appraisals — Reports.

Atlanta **Georgia**

CONSOER, TOWNSEND and ASSOCIATES

Water Supply, Sewerage, Flood Control and Drainage, Bridges, Express Highways, Paving, Power Plant, Appraisals, Reports, Traffic Studies, Airports Gas & Electric Transmission Lines

351 E. Ohio St., Chicago 11, Illinois
9½ N. Indiana St., Greencastle, Ind.

CRESCENT ENGINEERING COMPANY, INC.

Contracting & Consulting Electrical Engineers

Design, Supervision and Construction
Process Power and Lighting for
Industrial Plants

6455 S. Central Avenue, Chicago 38, Illinois

DeLEUW, CATHER & COMPANY

Consulting Engineers

Transportation, Public Transit and Traffic Problems

Industrial Plants, Grade Separations, Railroads, Subways, Power Plants, Expressways, Tunnels, Municipal Works

150 N. Wacker Drive **79 McAllister St.**
Chicago 6 **San Francisco 2**

FRASER, WEIR & ASSOCIATES, INC.

Industrial Consultants
Controlled Maintenance Installations

20 North Wacker Drive
Chicago 6, Illinois

LOUIS J. LUCAS

Industrial Management Engineer

A Personal Service . . .
In designing, installing and supervising to a successful conclusion, those products, controls, methods, procedures and systems needed in a profitable operation . . .
Since 1925

1055 Granville Avenue **Chicago 40, Illinois**

PAUL WEIR COMPANY

Mining Engineers and Geologists
Management and Consultation
Design and Construction

20 North Wacker Drive
Chicago 6, Illinois

PAUL BERG

Consulting Engineer

Specializing in Feed Milling and Grain Elevators
Registered Ten States

130½ E. Wayne St. **Phone E-7558**
FORT WAYNE, IND.

PLUMB, TUCKETT & PIKARSKY

Consulting Engineers

Railway & Highway Bridges
Investigations, Reports, Design
Maintenance and New Construction

2649 Wabash Ave. **Gary 3, Indiana**

WILSON & COMPANY

ENGINEERS

Salina, Kansas
Albuquerque, New Mexico
Denver, Colorado

EUSTIS ENGINEERING COMPANY

FOUNDATION AND SOIL
MECHANICS INVESTIGATIONS

Soil Borings—Laboratory Tests
Foundation Analyses—Reports

3635 Airline Highway
New Orleans 20, La.

WHITMAN, REQUARDT & ASSOCIATES

Engineers — Consultants

Civil—Sanitary—Structural
Mechanical—Electrical

Reports, Plans Supervision, Appraisals

1304 St. Paul Street, Baltimore 2, Maryland

FAY, SPOFFORD & THORNDIKE

Engineers

John Ayer — Ralph W. Horne
Hion A. Bowman — William L. Hyland
Carroll A. Farwell — Frank L. Lincoln
Howard J. Williams

Airports, Bridges, Turnpikes
Water Supply, Sewerage, Drainage
Port and Terminal Works
Industrial Building

Boston **New York**

METCALF & EDDY

Engineers

Water, Sewage, Drainage, Refuse and Industrial Wastes Problems
Airports — Valuations
Laboratory

Statler Building **Boston 16, Mass.**

COMMONWEALTH ASSOCIATES INC.

Consulting and Design Engineers

Power Generation
Electric—Gas—Water Systems
Industrial Planning

252 W. Cortland St. **Jackson, Michigan**

EUGENE K. FALLS

Consulting Engineer

PRESSURE RELIEVING SYSTEMS
Process Industries, Utilities
Manufacturing, Commercial, Residential
SAFETY VALVES • RELIEF VALVES
Consultation, Development
Design of Test Facilities,
Performance Tests, Modernization,
Special Applications

4445 North River Road, Port Huron, Mich.

ORRIN E. FENN

CONSULTING — DESIGN

Complete Engineering Service
Air Pollution—Fume and Dust Control
Finishing Systems for Painting,
Plating and Porcelain Enamel
Industrial Ovens and Dryers

38128 Lake Shore Dr. **Mt. Clemens, Mich.**

PROFESSIONAL DIRECTORY

Alphabetized by States . . .
Michigan-New York

THE HINCHMAN CORPORATION
Consulting Engineers
CORROSION CONTROL — Surveys, Reports, Design, Specifications, Evaluation
UNDERGROUND UTILITIES — Location, Mapping, leakage surveys, electrical grounding systems
HOLLOW PILING—Directional Surveys by electronics
Francis Palms Building Detroit 1, Mich.

BETTENBURG, TOWNSEND & STOLTE
Registered Professional Engineers
A complete professional service
1437 Marshall Ave., St. Paul 4, Minn.
Tel.: NEstor 6191

BLACK & VEATCH
Consulting Engineers
Water—Sewage—Electricity—Industry
Reports, Design
Supervision of Construction
Investigations, Validation and Rates
4706 Broadway, Kansas City 2, Mo.

BURNS & McDONNELL
Consulting and Designing Engineers
P.O. Box 7088 Kansas City, Mo.
Telephone DElmar 4375

A. C. KIRKWOOD & ASSOCIATES
ENGINEERS
CONSULTANTS
7800 The Paseo
Kansas City 10, Mo.

RUSSELL & AXON
Consulting Engineers
Civil — Sanitary — Structural
Industrial — Electrical
Rate Investigations
408 Olive St., St. Louis 2, Mo.
Municipal Airport, Daytona Beach, Fla.

J. Z. JIZBA
Civil Engineer & Architect
Bridges, Buildings, Drainage, Highways
Design, Survey, Supervision
5417 Ogden Street Omaha 4, Nebraska

FRANK E. HARLEY AND ASSOCIATES
Water Works, Sewage, Municipal Highways
Harley Building
860 Godwin Avenue Wyckoff, N. J.

UNITED STATES TESTING COMPANY, INC.
Engineering Testing and Inspection
Development—Research—Consulting
Soils • Concrete • Steel • Welding
Pipe • Brick • Tile
Main Laboratories: Hoboken, New Jersey
Boston, Denver, Chicago, Dallas, Memphis, New York, Wilmington, Philadelphia, Providence, Los Angeles

AMMANN & WHITNEY
Consulting Engineers
Design and Supervision of Construction of Bridges, Highways, Expressways, Buildings, Special Structures, Airport Facilities
111 Eighth Avenue, New York 11, N. Y.
724 E. Mason Street, Milwaukee 2, Wisc.

BROWN & BLAUVELT
Industrial Plants, Bridges, Dams, Airports, Expressways, Parkways, Highways, Preliminary Reports, Engineering Design, Construction Supervision, Material Controls and Testing, Municipal Engineering Services, Tax Maps, Surveying
468 Fourth Avenue New York 16, N. Y.

DRAKE & TOWNSEND, INC.
PROPANE PLANTS
Standby — Augmentation
100% Town or Plant Supply
Consulting — Design
Engineering — Construction
11 West 42nd St., New York 36, N. Y.

Restricted to Registered Professional Engineers . . . Directory Continued on Next Page

James B. Eads Chapter Chartered In Indiana

The James B. Eads Chapter has recently been formed in Columbus, Indiana, and chartered by the Indiana SPE.

The charter ceremony was held during National Engineers' Week, on February 24, and approximately one hundred fifty engineers, their wives, and prominent guests attended the banquet and charter presentation.

Dr. Ford Lee Wilkinson, president of Rose Polytechnic Institute, Terre Haute, and a member of the Francis Vigo Chapter of the ISPE was the main speaker for the occasion. He discussed the responsibilities of the true professional man.

Education Is Theme In Galveston

Professor Spencer J. Buchanan of Texas A & M College was the guest speaker at the February 23rd dinner meeting of the Galveston County Chapter of the Texas SPE. The theme of his lecture was *Education*.

Since the meeting was held coincidently with National Engineers' Week, all members were urged to bring high school students as their guests to hear the professor speak.

Automation Is Pa. Meeting Topic

Automation was the subject of twin lectures delivered at the March 14th dinner meeting of the Reading Chapter of the Pennsylvania SPE by Lucien T. Finch and Charles W. Morse, engineering executives at the General Electric Company's plant in Allentown. A film on automation was also shown to the Reading P.E.'s and their guests.

. . . more news on page 45

CONGRATULATIONS TO NEW-COMERS—The picture at the right was made during the charter banquet of the new James B. Eads Chapter of the Indiana SPE. (See story above.) It shows ISPE President-elect Henry M. Estergreen (second from left) presenting the official charter to Russel C. Eck, president of the chapter.

Seated at the left is Dr. Ford Lee Wilkinson, president of Rose Polytechnic Institute, Terre Haute, who was the speaker of the evening. At the right is Mrs. Wm. R. Laws, Jr., wife of the Rev. Wm. R. Laws, who delivered the invocation at the banquet.

PROFESSIONAL DIRECTORY

FOSTER & CAFARELLI
Engineers

Port Development, Shipyards, Drydocks, Power Plants, Distribution Systems, Industrial Plants, Commercial Buildings, Surveys, Reports, Estimates, Design, Supervision, Consultation.

44 Whitehall Street, New York 4, New York

HARDESTY & HANOVER
Consulting Engineers

Bridges—Long Spans of All Types
Movable—Lift, Bascule and Swing
Hanover Skew Bascule, Steel and Concrete Spans
Grade Crossing Eliminations
Expressways and Thruways
Other Structures, Foundations
Supervision, Reports, Appraisals

101 Park Avenue **New York 17, N. Y.**

FREDERIC R. HARRIS, INC.
Consulting Engineers

Harbors, Piers & Bulkheads, Drydocks, Foundations, Soil Mechanics, Sanitary & Industrial Waste Disposal, Airports, Highways, Bridges

27 William Street **New York 5, N. Y.**

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
Consulting Engineers

Bridges, Structures, Foundations
Express Highways
Administration Services

1805 Grand Avenue **55 Liberty Street**
Kansas City 8, Mo. **New York 5, N. Y.**

MADIGAN-HYLAND
Consulting Engineers

28-04 41st Avenue

Long Island City, New York

JAMES P. O'DONNELL
Engineers

Professional Engineering for the Petroleum and Process Industries

39 Broadway **Bowie Building**
New York 6, N. Y. **Beaumont, Texas**

PARSONS, BRINCKERHOFF, HALL & MACDONALD
Engineers

Bridges, Highways, Tunnels, Airports, Subways, Harbor Works, Dams, Canals, Traffic, Parking and Transportation Reports, Power, Industrial Buildings, Housing, Sewerage and Water Supply.

51 Broadway, New York 6, N. Y.

PRAEGER-KAVANAGH
Engineers

126 East 38th St. **New York 16, N. Y.**

SEELYE STEVENSON VALUE & KNECHT
Consulting Engineers
Richard E. Dougherty, Consultant

Airports, Highways, Bridges, Dams, Water Supply, Sanitation, Tunnels, Industrial Plants, Concrete, Steel, Industrial Waste Disposal, Foundations, Soil Studies.
Civil—Mechanical—Electrical

101 Park Avenue **New York 17, N. Y.**

SINGSTAD & BAILLIE
Consulting Engineers

Ole Singstad — David G. Baillie, Jr.
Tunnels, Subways, Highways
Foundations, Parking Garages
Investigations, Reports, Design
Specifications, Supervision

24 State St. **New York 4, N. Y.**

D. B. STEINMAN
Consulting Engineer

HIGHWAYS — **BRIDGES** — STRUCTURES

Design — Construction — Investigations
Strengthening — Reports — Advisory Service

117 Liberty Street **New York 6, N. Y.**

SYSKA & HENNESSY, INC.
Engineers

Design, Reports, Consultation
Power Plant, Disposal Plant,
Water Systems

NEW YORK, N. Y.

TIPPETTS-ABBETT McCARTHY-STRATTON
Engineers

Ports, Harbors, Flood Control, Irrigation
Power, Dams, Bridges, Tunnels, Highways
Subways, Airports, Traffic, Foundations
Water Supply, Sewerage, Reports, Design
Supervision, Consultation

62 West 47th Street **New York City**

New York — Washington — St. Louis — Oklahoma City

ADACHE & CASE, ENGINEERS
The Arcade **Cleveland 14, Ohio**

Aircraft Turbo-Jet Laboratories
Minus 100° to Plus 1000°
400 High Temperature Hot Water District Heating

ELMER S. BARRETT ASSOCIATES
CONSULTING ENGINEERS

Surveys—Design—Inspection
Highways — Municipal
Bridges — Reports
Transmission Lines

249 S. Paint St. **Chillicothe, Ohio**
Phone: 3-2287

E. D. BARSTOW & ASSOCIATES
E. D. Barstow—T. A. Gilliam

Water Supply, Sewerage,
Highways, Structures, Industrial

163 N. Union Street **Akron 4, Ohio**

GEORGE W. BRANDT, ENGINEER
Consulting • Design •

Mechanical • Development • Fabrication

Box 101 **West Milton, Ohio**

GUSTAVE M. GOLDSMITH
Consulting Engineer

General Structures — Plant Layout

Design—Investigation—Quantity Surveys

1734 Bella Vista **Cincinnati 37, Ohio**

EMMET J. McDONALD
CIVIL ENGINEER

HIGHWAYS, MUNICIPAL, SURVEYS

337 Rhodes Avenue **Akron 2, Ohio**

THE H. C. NUTTING COMPANY
Engineers and Chemists

Foundation Investigations
Core Drilling
Water and Waste Surveys
Complete Testing Service

4120 Airport Road, Cincinnati 26, Ohio
2145 N. W. 2nd Ave., Miami 37, Florida

H. R. RICHARDS — A. V. ALEXEFF & ASSOCIATES
Consulting — Design
Development — Fabrication
Heat Processing Equipment

INDUSTRIAL OVENS, INC.
13825 Triskett Rd., Cleveland 11, Ohio
Tel. CL-1-4400

JOHN OSTBORG
Engineer Designer

Diesel Engine Design Consultant
Mechanical Engineering & Design Service

31 E. High Street **Springfield, Ohio**

TOLEDO TESTING LABORATORY
Engineers and Chemists

Concrete — Soils — Asphalt
Inspection — Tests — Supervision
Consultation — Specifications and Investigation of
Engineering Works and Materials

1810 North 12th St. **Toledo 2, Ohio**

OKLAHOMA TESTING LABORATORIES
Registered Engineers—Chemists
Oklahoma City, Okla.
Materials Testing and Inspection
Member A. C. I. L.

C. A. Lashbrook — **M. A. Witte**
Owner-Director — **Chief Engineer**

ALBRIGHT & FRIEL, INC.
Consulting Engineers

Water, Sewage, Industrial Wastes and Incineration Problems
City Planning, Highways, Bridges and Airports
Dams, Flood Control, Industrial Buildings
Investigations, Reports, Appraisals and Rates
Laboratory For Chemical & Bacteriological Analyses
Complete Service on Design and Supervision of Construction

Three Penn Center Plaza, Phila. 2, Pa.

MICHAEL BAKER, JR., INC.
Consulting Engineers

Highways, Airports, Waterworks, Sewers, Sewage Treatment, City Planning, Surveys, Photogrammetric Mapping

Baker Building—Rochester, Penna.
Branch Offices
Harrisburg, Pa., Jackson, Miss., College Park, Maryland

CAPITOL ENGINEERING CORPORATION
Engineers—Constructors—Management

Design and Surveys — Roads and Streets
Sewer Systems — Water Works
Planning — Airports
Bridges — Turnpikes — Dams

Executive Offices: Dillsburg, Pennsylvania
Washington, D. C. — **Pittsburgh, Pa.**
Dallas, Texas — **Paris, France**

PROFESSIONAL DIRECTORY

Alphabetized by States . . .
Pennsylvania-Texas

FRAZIER-SIMPLEX, INC.
CONTRACTING & CONSULTING ENGINEERS
Furnace Engineering for the Glass and Steel Industries
436 East Beau Street, WASHINGTON, PA. U. S. A.

GREEN ENGINEERING COMPANY
Consulting Engineers
Highways, Bridges, Buildings, Industrial Plants
Pittsburgh, Pa.
Philadelphia, Pa. — Baltimore, Md.
Boston, Mass. — Washington, D. C.
Chicago, Ill. — Miami, Florida

MODJESKI AND MASTERS
Consulting Engineers
G. H. Randall — J. R. Glese
C. W. Hanson — H. J. Engel
F. M. Masters
Design and Supervision of Construction
Inspection and Reports
Bridges, Structures and Foundations
State St. Bldg., Harrisburg, Pa. — New Orleans, La. Philadelphia, Pa.

HARRIS HENRY LANTZ & POTTER
Consulting — Design — Reports
Mechanical — Electrical — Civil
Architectural
Spring Valley — R.D. 3, Doylestown, Pa.

HALL LABORATORIES, INC.
Consultants on Industrial Water Problems
Boiler Water Conditioning, Cooling Water Treatment, Process and Waste Water Engineering Service
P. O. Box 1346 (323 Fourth Ave.) — Pittsburgh 30, Pa.

CYRUS WM. RICE & CO., INC.
Consulting Chemical Engineers
Industrial Water and Waste
16 Noble Avenue, Pittsburgh 5, Penna.

HOPF AND BERTALOTT
Adolf R. Hopf, P.E. — Albert Bertalott
Industrial Engineers
Management Consultants
Rittenhouse 6-9071
1505 Race Street — Philadelphia 2, Pa.

THE KULJIAN CORPORATION
Engineers • Constructors • Consultants
POWER PLANTS
(Steam, Hyro, Diesel)
Oil Refineries, Pipe Lines • Chemical Plants • Textile Plants • Breweries, Food Processing Plants • Airports, Hangars Army, Navy Installations
1200 No. Broad St., Philadelphia 21, Pa.

EMERSON VENABLE
Chemist and Chemical Engineer
Chemical Analysis
Research — Development
Trouble Shooting
6111 Fifth Ave., Pittsburgh 32, Pa.

GANNETT FLEMING CORDDRY & CARPENTER, INC.
Engineers
Water, Sewage, Roads, Turnpikes
Bridges, Airports, Traffic, Appraisals
HARRISBURG, PA.
Philadelphia, Pa. — Daytona Beach, Fla.
Pittsburgh, Pa. — Medellin, Columbia, S.A.

LAWRIE & GREEN & ASSOCIATES
Architectural and Engineering Offices
321 N. Front Street
Harrisburg, Pennsylvania
Ritchie Lawrie, Jr., P.E., Consulting Engineer

ENGINEERS TESTING LABORATORY, INC.
FOUNDATION AND SOIL MECHANICS INVESTIGATIONS
Soil Borings — Laboratory Tests
Foundation Analyses — Reports
3313 Main Street — Houston, Texas

Restricted to Registered Professional Engineers . . . Directory Continued on Next Page

C. Arnold Dutton Receives Service Award

The Erie County Chapter of the New York State SPE has bestowed its annual award for distinguished engineering service on C. Arnold Dutton, director and manager of construction sales of the Buffalo Electric Company, of which he also is a vice president.

Mr. Dutton, who is a member and past president of the Erie County Chapter, is well-known in civic, professional, and technical fields. He holds two patents on industrial furnaces. He is a graduate of M.I.T.

PAST PRESIDENTS HONORED—The members of the Nueces Chapter of the Texas Society of Professional Engineers recently held their annual meeting and dinner dance in Corpus Christi. Among the honored guests were nine of the twelve past presidents of the chapter, who appear in the photograph at the right. Left to right, they are: Conrad Blucher, Mrs. Joe E. Wood, Harry E. Graham, William W. McClendon, Nat W. Hardy, Jesse R. Laurence, Duane Orr, Homer C. Innis, and Neil A. Waterbury.

The meeting also featured the installation of new officers for the current administrative year. Victor Jaeggli heads the slate as president.

Society Benefits Are Discussed

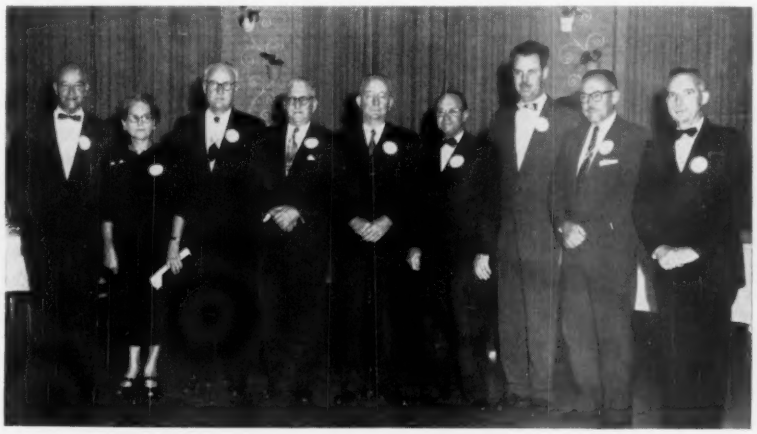
The Benefits of Technical and Professional Societies was the theme of the lecture delivered by C. F. Savage at the Engineers' Week meeting of the North Shore Chapter of the Massachusetts SPE. Engineering students from area colleges were guests.

Mr. Savage is a consultant in professional relations in the Engineering Personnel Department of the General Electric Company.

Illinois Prepares For Annual Meeting

Members of the Lake County Chapter of the Illinois Society of Professional Engineers will be hosts for the 71st annual meeting of the ISPE, scheduled for April 12-14. Headquarters for the convention will be at the Hotel Moraine-On-The-Lake in Highland Park, Illinois.

Governor Stratton of Illinois will be among the prominent speakers who will address the meeting.



PROFESSIONAL DIRECTORY

Alphabetized by States . . .
Texas-West Virginia

FORREST and COTTON
Consulting Engineers
Regional Water Supplies
Water and Sewage Works
Industrial Development
Airports — Dams
Appraisals — Reports
803 Praetorian Building Dallas 1, Texas

FREESE & NICHOLS
Consulting Engineers
407-410 Danciger Bldg.
Fort Worth 2, Texas

LOCKWOOD & ANDREWS
Consulting Engineers
Water Works, Sewerage & Sewage Disposal, Public Works, Structures, Earthworks, Mechanical & Electrical.
Reports—Design—Supervision
Surveys—Valuations
Corpus Christi—Houston—Victoria, Texas

HARRY OTIS WRIGHT, JR.
Civil Engineer and Land Surveyor
THE WRIGHT ENGINEERS
Airports, Highways, Sewerage, Waterworks, Sewage Treatment, Land Planning, Surveys, Mapping
Phone: CRescent 3-2882
Post Office Building, Fairfax, Virginia.

FERGUSON-GATES ENGINEERING CO.
Registered Professional Civil and Mining Engineers
Coal Property Reports — Valuation — Development — Plant Design — Ventilation — Dust Surveys
Allen Building P. O. Box 672
Telephone 5721 Beckley, W. Va.

FRANK D. McENTEER
Consulting Engineer
BRIDGES, HIGHWAYS, AIRPORTS, INDUSTRIAL PLANTS
Design, Surveys, Investigations
504 Baltimore Ave., Clarksburg, W. Va.

. . . Supplemental Services . . .

ELLMANN ENGINEERING CO., INC.
Electrical Engineers
Designers and Manufacturers of Automatic Control, Alarm and Supervisory Systems for Industrial, Commercial and Institutional Applications.
P. O. Box 3627 Washington 7, D. C.

PROFESSIONAL ENGINEERS
Put your Card here
Keep your name before more than 37,000 readers. It's good business.

PHILIP J. HEALEY, INC.
Engineers and Contractors
TEST BORINGS
CORE DRILLING for FOUNDATIONS
207 Baldwin Ave., Jersey City 6
Jo.Sq. 2-3313
11 Park Place, New York 7
Ba. 7-2728

POINT CONSULTING COMPANY
research and development
Box 8656 Pittsburgh 21, Pa.

GILES DRILLING CORPORATION
Subsurface Explorations
Large Calyx Holes in Rock
Engineering Geology Reports
2 Park Avenue New York 17, N. Y.

KENNEDY-RIEGGER DRILLING COMPANY, INC.
Fred W. Riegger, P.E., President, Assoc. Mem. A.S.C.E.
Licensed Professional Engineers
Core Drilling Contractors
Diamond Drill and Test Borings
KIngsbridge 9-8458
5418 Post Road, New York 71, N. Y.

PRECISION WEIGHING
Travelling Balance Repair Service
Purchase and Installation of Precision weighing equipment. Cleaning, Repairing of equipment in your own laboratory if required; making shipment unnecessary. Special weighing assignments undertaken. Preliminary Consultation Suggested.
TURNER BALANCES AND WEIGHTS
Edward H. Turner, P. E.
79 Kenneth Place New Hyde Park, N. Y.

MANU-MINE RESEARCH & DEVELOPMENT CO.
Soil Solidification
Geological Engineering
Chemical Research
P. O. Box 167
Reading, Pennsylvania

● *Consult this Directory for Qualified Specialists* ●

PROFESSIONAL DIRECTORY RATES

12 mos., paid in advance	$ 96.00
12 mos., billed monthly @ $9.00 ea.	108.00
6 mos., paid in advance	54.00
6 mos., billed monthly @ $10.00 ea.	60.00

Engineers' Week

(*Continued from page 33*)

tion to various special programs. A special lapel button, incorporating the Engineers' Week seal, was also distributed through the efforts of the West Virginia SPE.

In Wisconsin— A Similar Story

Chapters of the Wisconsin SPE reporting on their Week's activities also had a similar story to tell. . . . The Northwest Chapter, with headquarters in Eau Claire, directed its efforts to extensive newspaper, radio, and TV coverage in a wide area. Its members also addressed various local service clubs. As a special project, during the Week the chapter inaugurated a new refresher course for men planning to take the State licensing examination. . . . The Southwest Chapter aimed at "education for registration" in its program and had 150 senior engineering students from the University of Wisconsin and 32 from the Wisconsin Institute of Technology as guests at the February 22nd banquet that highlighted the Week. . . . Western Chapter members heard Karl O. Werwath, president of the Milwaukee School of Engineering, discuss technical institute programs at their Engineers' Week dinner meeting.

Summing Up—

Thus the story was written throughout the country as chapter after chapter and each state society took up the challenge of the Week and brought its theme, "Engineering . . . Builder of a Brighter Future," to the attention of the general public. And the tributes that were paid in return were genuine and generous. National Engineers' Week, 1956, was an outstanding success. Its record stands as a high mark of attainment. It will be something to equal, but it will not be easy to surpass in 1957.—*End.*

WE ARE PROUD OF OUR NEW HEADQUARTERS

The next time you are in the Nation's Capital, don't forget to pay us a visit at

2020 K Street, N.W. (Postal Zone 6)

NSPE's new home is your building, too, and its facilities make possible our better service of your profession.

Non-Registered Virginia Engineer Is Denied Fee

The Supreme Court of Appeals of Virginia has ruled that an engineer who is not registered under the state law may not enforce a claim for engineering services which required compliance with the state registration law.

The decision arose out of a suit for $1,000 filed by Harry G. Clark against James R. Moore, based on an oral agreement that Clark should receive as a fee 10 per cent of the profit made by Moore on work to be done at the Norfolk Naval Base. Clark's services included figuring the costs and profits on the job, the allocation of subcontracts, and general engineering services and advice.

The lower court directed a verdict in Moore's favor on the ground that Clark, by his own testimony, had admitted that he held himself out as a professional engineer and was practicing his profession without having obtained a license under the Virginia Engineering Registration Act. Clark said that he had received a degree in civil engineering from the School of Engineering, Lima, Peru, that he was a civil engineer by occupation, that he had been engaged in the practice of engineering in many different capacities in Virginia, and that he was thoroughly qualified by education and practical experience as a civil engineer.

After denying Clark's plea that he be permitted to refute his testimony as to the engineering nature of his services, the high court said that, in any event, the services he performed did come within the definition of engineering in the state law. Quoting from a previous case, the Supreme Court of Appeals said: "In general, it seems to be well established that where a licensing statute is a police regulation, having for its object the protection of the public . . . a contract made by an unlicensed person is void and unenforceable." To this was added: "The law refuses to enforce illegal contracts, as a rule, not out of regard for the party objecting, nor for any wish to protect his interests, but from reasons of public policy. Whenever, therefore, the illegality of the contract appears . . . it is fatal to the case . . . The law will not enforce contracts founded in its violation."

CLASSIFIED ADVERTISING

Minimum 3 lines.
Undisplayed: $1.50 per line.
Displayed: Same rate as General Advertising.

Positions Wanted: Undisplayed, 75c per line. Displayed, 50% off General Advertising Rates.
Box Number chargeable as one line.

Mail Box Number replies to:
AMERICAN ENGINEER
1121 15th St., N.W. Washington 5, D. C.

Positions Available

CIVIL ENGINEERS

Work and live in wonderful WISCONSIN

A rapidly expanding highway program offers:

Permanent civil service positions
Rapid advancement
Challenging work
Starting salary based on experience

Civil engineering degree or professional registration required

WRITE TO: Personnel Officer
STATE HIGHWAY COMMISSION OF WISCONSIN
State Office Building
Madison 2, Wisconsin

Positions Available

CHIEF DESIGN ENGINEER
Electrical/Mechanical

To be responsible for design, research and development of motors, pumps, heating elements, electrical controls, electrically heated pipe sections. Professional license required in or transferable to Connecticut. Salary $10,000 to $12,000. Send confidential resume to box A-301, AMERICAN ENGINEER.

OPPORTUNITY FOR COMPETENT ENGINEER

In plant Engineering Department of successful, well established Michigan manufacturer. Graduate and/or Registered Engineer preferred — Mechanical, Civil or Electrical.

Age preference — 27 to 35. Permanent position. Minimum of 5 years industrial or building construction experience.

Man with capacity and potential for advancement to responsible position. Company is expanding.

Give details as to education, experience and other qualifications.

Box AD-302, AMERICAN ENGINEER

Have you checked the READER SERVICE FEATURES in this isusue?

√ *What's New*
√ *New Literature*
√ *New Processes*

Positions Wanted

Reg. INDUSTRIAL Engr.—Grad. MECHANICAL, Age 42. Courses after graduation in industrial management and engineering. Heavy exp. in Estimating, Industrial Engineering & Production. Over 8 yrs. exp. at staff level in industrial and manufacturing engr. Desires position commensurate with ability and training. Mid-West Area, $800 month. (A-27)

(Small service charge)
THE OHIO ENGINEERS' PLACEMENT SERVICE, INC.
5 East Long St., Columbus 15, Ohio
Affiliated with OSPE

► USE CLASSIFIED ADS ◄

Books

NATIONAL PLUMBING CODE *ILLUSTRATED*

by Vincent T. Manas, P. E.

The only illustrated guide to the widely accepted Standard ASA A40.8 National Plumbing Code.

An invaluable aid in your plumbing design.

To: Manas Publications
4513 Potomac Ave., N.W.
Washington 7, D. C.

Send me ..... copies of "National Plumbing Code Illustrated" @ $4.00 per copy.

Check enclosed.

Name .....

Address .....

City ..... Zone State .....

...NEW LITERATURE...

To help the offering firms determine which literature you require, when requesting an item, be sure to list all specifications shown . . . and say you saw it in the AMERICAN ENGINEER.

CEMENT BATCHING — The 41-page Blaw-Knox illustrated booklet covers portable bulk cement plants, portable aggregate plants, and portable one-stop plants. Features; capacities, and dimensional data are given on each type of plant. Bulletin number 2488 is available from Blaw-Knox Company, Construction Equipment Division, Mattoon, Ill.

—AE—

PRECISION TRANSITS — A new brochure is issued by Warren-Knight on their new Model No. 2-cFS Transit. Gives specification of each part and a detailed description of advantageous features. Outlines free trial offer and guarantee, prices and terms. Request from Warren-Knight, 136 N. 12th St., Philadelphia 7, Pa.

—AE—

AIR HANDLING—A new and modernized 40-page Engineering Manual No. E.M.-G.5622 is published especially as a reference guide for architects, engineers and air conditioning contractors by Drayer-Hanson, Inc., Los Angeles. It contains the latest and most complete data on Company's important line of large air handling units—the HH (ceiling-suspended) and HHV (floor-mounted) Series for commercial, industrial and residential heating and cooling. The manual, an extremely comprehensive one, illustrates and gives dimensions and capacities with a great amount of selection and application data. Helpful charts and tables of general interest cover several pages. Request Manual E.M.-G5622 from Drayer-Hanson, Inc., 3301 Medford Street, Los Angeles 63, Calif.

—AE—

SPECIFICATIONS—"Firm Specifications and their Effect on Building Costs," the much discussed talk given at the second annual Heating and Air Conditioning Conference held in Salt Lake City last April by Mr. Kenneth M. Wilson, Chief of the Electrical and Mechanical Engineering Division, E. F. Klingler and Associates, Eau Claire, Wisconsin, has now been made available in special reprint form. This carefully documented study has deep implications in the new construction field, and is considered by many as "must" reading at the professional level. The Fred H. Schaub Engineering Co., and Magnetrol, Inc., 2110 S. Marshall Blvd., Chicago 23, Illinois, are now offering a reprint of this timely and significant talk in a durably bound printed booklet without charge or obligation as a service to the engineering profession.

—AE—

WATER TREATMENT — A highly informative technical article presenting an economic analysis of conventional and high-rate water treatment plants is now available without cost from Graver Water Conditioning Co., 216 West 14th Street, New York. One of the first problems that arises in designing a municipal water treatment plant is whether to use high-rate or so-called conventional sedimentation equipment. Of major importance, as with so many other major items of equipment, is the economics of the two types of systems. This article, Technical Reprint T-141, was prepared by Graver's engineers using actual case studies. The material is presented in an impartial manner pointing out both the merits and disadvantages of each.

INSTRUMENT TRANSFORMERS — GEC-1028, 80 pages, gives all the vital facts and figures on General Electric's complete instrument transformer line, including latest additions to the ever-expanding group of butyl-molded current transformers. General Electric Company, Schenectady 5, N. Y.

—AE—

SOIL-CEMENT — A new "Soil-Cement Laboratory Handbook" containing up-to-date information on testing practices is now available. The completely rewritten booklet includes modifications in practice which have reduced testing time by two-thirds in recent years. Among recent changes discussed are the short-cut procedure for sandy soils, simplification of wet-dry and freeze-thaw tests, and rapid methods of testing soils for small projects. Copies are available free on request in the United States and Canada from the Portland Cement Association, 33 W. Grand Ave., Chicago 10, Illinois.

NEW COLOR MOVIE ZINC CONTROLS CORROSION

A new 16 mm. sound and color motion picture, "Zinc Controls Corrosion" has just been produced by The American Zinc Institute, Inc., national trade association for the zinc industry. Available for showing before agricultural, industrial, technical, and educational groups, the new AZI film dramatically tells how zinc in its role of "protector" controls corrosion to lengthen life, and to minimize maintenance and replacement costs.

Bookings for "Zinc Controls Corrosion" are now being accepted at The American Zinc Institute, Inc., 60 East 42nd Street, New York 17, New York. The new film is available for showing at no charge. Special booking forms can be had on request.

COMPUTING—A new seven page brochure covers Simulation, Computing, Data Reduction and Data Processing by the J. B. Rea Company, Inc. Descriptive diagrams show the flow of data. From the Problem Analysis and Preparation Service, the data is routed to the desired facility—Analog Simulation — Digital Computing and Record Reading — Analog-to-Digital Conversion — Digital-to-Analog Conversion. Copies of this new brochure may be acquired free of charge by writing the J. B. Rea Company, Inc., 1723 Cloverfield Blvd., Santa Monica, California.

—AE—

PULP AND PAPER—Instrumentation systems for pulp and paper mills are described in a new 32-page illustrated catalog, published by Fischer & Porter Company, Hatboro, Penna. Systems for 24 sections of various types of mills—from cooking liquor preparation to wet-end control—are completely covered. A flow diagram and description of each separate operation is accompanied by photographs of typical F&P control systems installed in various paper mills throughout the world. Copies of Instrumentation Systems for the Pulp and Paper Industry, Bulletin 90-130-10, are available on request from Fischer & Porter Company, 626 Jacksonville Road, Hatboro, Penna.

WIRE ROPE—A comprehensive 60-page handbook on the selection, use, and care of wire rope in drilling operations has been prepared by Jones & Laughlin Steel Corporation. The handbook is titled "Wire Lines for Drillers." It covers wire rope applications in oil, gas and water well drilling operations. Sections are devoted to: Using and Maintaining J&L Wire Rope; Wire Ropes for Rotary Drilling; Wire Ropes for Cable Tool Drilling; Wire Lines for Production; Tables of Strengths—Oil Country Wire Lines. The handbook is pocket-sized for ready reference. Copies are available by writing: Wire Rope Products Division, Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh 30, Pa.

—AE—

RUST PREVENTION—General Catalog, issued by Rust-Oleum Corp., is twenty-eight pages. Presents an important treatise in rust prevention with illustrations of uses and applications throughout industry. Included are 102 color chips showing the many Rust-Oleum colors available. Presented in striking white Chromekote covers for easy handling and printed in four colors, the new Rust-Oleum Catalog may be obtained by writing the Rust-Oleum Corporation, 2799 Oakton Street, Evanston, Illinois, and requesting Form Number 255.

—AE—

PRECISION GLASSWARE — A four-page, two-color brochure featuring the use of Precision Glassware for Electronic Applications has been released by Wilmad Glass Company, Landisville, New Jersey. The brochure describes in detail precision bore tubing which can be supplied with I.D. tolerance down to ± .0002". In certain sizes the wall thickness can be made between .015" and .3125". Precision bore capillary tubing is also described. It is available in a range which runs from .004" I.D. to .1255" I.D. with tolerance limits set at ± .0002". Also available are special items in the electronics field made of Vycor Brand, Pyrex Brand and most of the electronics glasses. Copies of the new brochure are available from Wilmad Glass Company, Inc., Landisville, New Jersey.

—AE—

MECHANICAL TUBING — Production and design engineers will be interested in a four page folder published by the Tubular Products Division of The Babcock & Wilcox Company. This bulletin tells how, in a number of case histories, B&W electric-resistance-welded carbon steel mechanical tubing solved engineering problems and simplified production and reduced cost. Copies of the folder, known as TB-362, are available free upon request to the division's general offices at Beaver Falls, Pa.

—AE—

TUNNEL EQUIPMENT—A new, 8-page catalog of equipment for the mining industry is being offered free of charge by Mayo Tunnel and Mine Equipment. The 2-color catalog is fully illustrated with equipment shown in operation or being installed. Informative captions give use and application of Mayo equipment such as steel forms, mine cars, head frames, sinking frames, drill jumbos, mixer-placer trains, tunnel shields, etc. Write Mayo Tunnel and Mine Equipment, Lancaster, Pa.

Unity

(*Continued from page* 16)

represented by ill-qualified organizations more in the form of labor unions, veering away from the visionary objectives of true unity which the majority of the profession is seeking.

Despite the tragic apathy among a large segment of engineers in matters other than technical, there are many professionally minded engineers who look forward hopefully to the ultimate ideal situation where engineers are recognized by employers and the public as professional people, and every practicing engineer is registered to protect the public and the engineer, which will help to effect this recognition. This situation will come about in time but progress is slow. We need a unity organization now and to obtain it we must all temporarily sacrifice some ideals of perfection and face reality. Until we have completely convinced the public, the employers of engineers, and members of our own profession of the necessity for universal registration and dignified professional recognition, we cannot at this time effect a true unity organization if registration is a must requirement of membership in such a unity organization.

The AEA Plan for unity, its proponents feel, might become a major step toward the ultimate goal, though admittedly not approaching perfection in a unified profession. It has been suggested that we take the first step now by unifying what we have today through adoption of the AEA Plan. We can then, through this initial unity organization, continually and aggressively work toward the ideal of having universal registration of all professional engineers, and the instilled awareness of the need for registration among all engineers, which will give us a truly "professional" profession based on public recognition and deep, sincere, professional consciousness among engineers.

The AEA Plan has been submitted to the Planning Committee of Engineers Joint Council and to the Executive Committee of NSPE for consideration.—***End.***

About the Author . . .

Mr. Morton

Walter B. Morton of Allentown, who has recently been named electrical engineer in charge of the Pennsylvania Power & Light Company's Electrical Engineering Department, has been with the company since 1945. Prior to that, he served with the Philadelphia Electric Company in various engineering capacities. In his present position, he is responsible for all of the electrical engineering required for transmission and distribution lines, substations, and power lines within PP&L's 10,000 square miles service area.

Also noted for his professional interests, Mr. Morton is a member of NSPE, the American Society for Engineering Education, and other national professional organizations. He is active in the American Institute of Electrical Engineers, currently serving as chairman of the Committee on Student Branches. He has also been a director of EJC and AIEE representative on EJC's Executive Committee.

A Navy veteran of both World Wars, Mr. Morton holds the rank of captain in the U. S. Naval Reserve.

Advertisers' Index

Adache & Case, Engineers 44
Albright & Friel, Inc. 44
Ammann & Whitney 43
Michael Baker, Jr., Inc. 44
Elmer S. Barrett Associates 44
E. D. Barstow & Associates 44
Paul Berg 42
Bettenburg, Townsend & Stolte 43
Black & Veatch 43
George W. Brandt, Engineer 44
Brown & Blauvelt 43
Burns & McDonnell 43
Capitol Engineering Corporation 44
Commonwealth Associates, Inc. 42
Consoer, Townsend and Associates ... 42
Conwell Lucas 42
Crescent Engineering Company, Inc. .. 42
DeLeuw, Cather & Company 42
Drake & Townsend, Inc. 43
Ellmann Engineering Co., Inc. 46
Engineering Products Co. 8
Engineers Testing Laboratory, Inc. ... 45
Eustis Engineering Company 42
Fairchild Aircraft Div. 7
Eugene K. Falls 42
Fay, Spofford & Thorndike 42
Orrin E. Fenn 42
Ferguson-Gates Engineering Company 46
Forrest and Cotton 46
Foster & Cafarelli 44
Fraser, Weir & Assoc. 42
Frazier-Simplex, Inc. 45
Freese & Nichols 46
Gannett, Fleming, Corddry & Carpenter, Inc. 45
General Electric Co. .....Back Cover
Giles Drilling Corp. 46
Gustave M. Goldsmith 44
Green Engineering Co. 45
Hall Laboratories, Inc. 45
Hardesty & Hanover 44
Frank E. Harley & Associates 43
Frederick R. Harris, Inc. 44
The Hinchman Corporation 43
Howard, Needles, Tammen & Bergendoff 44
Harris Henry Lantz & Potter 45
Philip J. Healey, Inc. 46
Hopf & Bertalott 45
Industrial Ovens, Inc. 44
J. Z. Jizba 43
Kaiser Engineers 42
Kennedy-Riegger Drilling Co., Inc. .. 46
Kirk & Cowin 42
A. C. Kirkwood & Associates 43
Kuljian Corporation 44
Law-Barrow-Agee Laboratories, Inc. .. 42
Lawrie & Green & Associates 45
Leap Concrete 4
Lockwood & Andrews 46
Louis J. Lucas 42
Madigan-Hyland 44
Vincent Manas 47
Manu-Mine Research & Development Co. 46
Emmet J. McDonald 44
Frank D. McEnteer 46
Metcalf & Eddy 42
Merritt & Welker 42
Modjeski and Masters 45
Momar Industries 6
George V. R. Mulligan, P.E. 42
H. C. Nutting Co. 44
James P. O'Donnell 44
Oklahoma Testing Laboratories 44
John Ostborg 44
Palmer & Baker, Inc. 42
Parsons, Brinckerhoff, Hall & MacDonald 44
Plumb, Tuckett & Pikarsky 42
Point Consulting Co. 46
Praeger-Kavanagh 44
Radio Corporation of America 8
Revolvator Company 6
Cyrus Wm. Rice & Co., Inc. 45
Robert and Company Associates 42
Russell & Axon 43
Sellye, Stevenson, Value & Knecht 44
Singstad & Baillie 44
South Florida Test Service 42
D. B. Steinman 44
Stromberg-Carlson Co. 5
Sverdrup & Parcel, Inc. 42
Syska & Hennessey, Inc. 44
Tippets-Abbett-McCarthy-Stratton 44
Toledo Testing Laboratory 44
Turner Balances and Weights 46
United States Testing Company, Inc. .. 43
Emerson Venable 45
Warren-Knight Co. 4
Paul Weir Co. 42
Whitman, Requardt and Associates .. 42
A. W. Williams Inspection Co. 42
Wilson & Company 42
Wisconsin State Highway Comm. 47
The Wright Engineers 46

What's New

AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 1 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State .....

PERSPECTIVE DRAWINGS — Item 1

Precision Perspective, an extraordinary new system of perspective drawing, gives a photographic accuracy, yet is simple and fast in the representation of a subject on a plane surface. Basic sets of seven grids in three different sizes, for both interior and exterior rendering. The seven grids in any size are progressively displaced from each other in steps of 20 degrees. Rotation of a basic set makes possible a total of 81 different positions in the representation of a subject.

AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 2 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State .....

MOISTURE PROOFING — Item 2

Addition of only 2% to 4% of LOSORB, the low-cost moisture-proofing additive, recently introduced by Pennsylvania Industrial Chemical Corp. is said to permanently decrease by about 50% the permeability of concrete blocks, mortar, plaster, stucco and concrete. Also minimizes crack frequency, makes the mix more plastic and easier working, acts as a lubricant in molding, minimizes shrinkage in curing, and prevents stucco from drying and cracking before the concrete base cures thoroughly. Industrial steel supported on concrete treated with LOSORB is protected from corrosion by moisture absorbed from the earth.

AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 3 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State .....

MOBILE MAP FILE — Item 3

Ross-Martin Co. announces a new lightweight, mobile map rack on double ball-bearing rubber tired casters. Rigidly constructed of welded angle iron, sheet metal and steel rods, the Model V-80 (size $49\frac{3}{8}$" x $16\frac{3}{8}$") accommodates 80 maps of any size. Metal-end telescope tubes to be used together for dust-proof filing or singly as open end filing are available.

AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 4 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State .....

WET TYPE DUST-FUME COLLECTORS — Item 4

Recently announced by the Zack Company were the floor type and cone type dust-fume collectors. Essentially, these units consist of a cylindrical drum and internal wash-producing structures. The new Zack dust-fume collector units are reported to involve a unique, highly original cone and baffle design which is said to result in a "cyclonic" washing action. This, in turn, creates a turbulence which separates the wet dust and carries it to a sludge tank for removal.

AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 5 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State .....

WATER-HAMMER ARRESTOR — Item 5

This new shock absorber was developed by J. A. Zurn Mfg. Co., under the name of "Shoktrol," to halt water hammer in all types of hydraulic systems. Pre-charged with air pressure, the bellows, at the right, remains in full, extended position under normal pressures. It and the case, at left, are of stabilized, austenitic stainless steel for complete corrosion resistance. In six sizes to provide complete protection against water-hammer pressure in half-inch to two-inch diameters for varying pipe sizes, lengths and pressures.

This column describes new products of general interest to professional engineers. For further information, fill in the coupon provided and mail to the AMERICAN ENGINEER.

These listings are informational and are not an endorsement of the products, nor of the manufacturer's claims.

40 FT. PER MINUTE WHITEPRINTER — Item 6

A new, high-power, high-speed, 4000 watt, 40 feet per minute, 44" width capacity, 230 bolt whiteprinter, the compact SPEEDMASTER model 4000C, has been announced by Peck & Harvey. Handles cut sheets or roll stock at a synchronized printing and developing speed up to 40 feet per minute—a capacity of over 100 square feet per minute. Designed to provide efficiency of volume production whiteprinting from translucent originals.

AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 6 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State .....

CEMENT ADMIXTURE INCREASES STRENGTH — Item 7

Development of a new admixture for cementitious mixes which provides up to 40 per cent higher ultimate strength in less time and with a possible 15 per cent savings in cement has been announced by the Building Products Division of L. Sonneborn Sons, Inc. Called "Sonotard," the new material under test conditions has been shown to produce 28-day specified strength as early as the seventh day, according to the manufacturer. Designed to slow up the setting of concrete and mortar mixes. Allows more effective control of mixing, placing and finishing.

AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 7 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State .....

PORTABLE METAL HARDNESS TESTER — Item 8

An improved portable metal hardness tester that provides direct readings corresponding to Rockwell "A," "B" or "C" scales or Brinell Medium or Low scales is announced by Newage International, Inc. Can be used to obtain accurate readings quickly on practically any size, shape or type of metal—whether in plant, laboratory or field. Direct reading can be made in seconds, without cutting a sample from or damaging the work, merely by placing the tester on the metal, pressing the handgrips down and reading the dial.

AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 8 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State .....

MIST LUBRICATION FOR OPEN SURFACES — Item 9

A new device for automatically applying a controlled, premeasured quantity of mist lubrication on open gears, chains, cams, rollers, eccentrics, slides and ways, circular saws and similar surfaces has just been announced. The device, called the MistOmatic Spray Control, was designed by Lincoln Engineering Company for use in conjunction with their power-operated, time-clock controlled Centralized Lubrication Systems which, in combination, permits automatic, simultaneous lubrication of both closed bearings and open surfaces at pre-set time intervals.

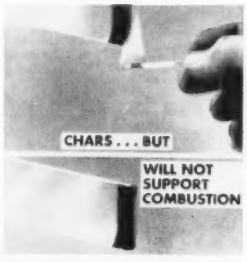
AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 9 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State .....

PLASTIC WON'T SUPPORT COMBUSTION — Item 10

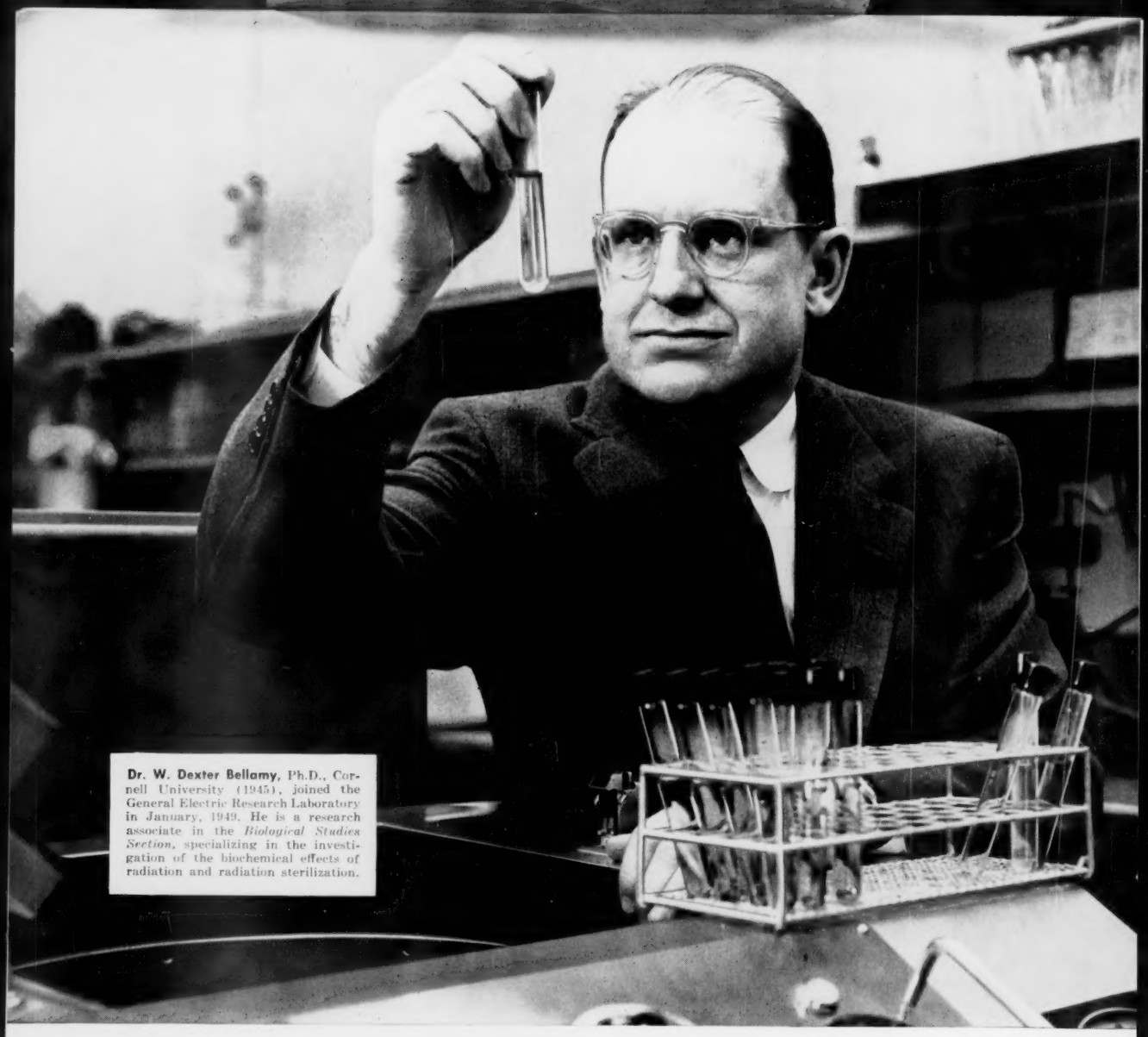
A strong, clear thermo-setting plastic with unusual properties has been announced by the Homalite Corp. Homalite 101 does not support combustion; has the highest heat resistance yet developed. Although it chars when direct flame is applied, it will not continue to burn when flame is removed. Clear and almost colorless. Provides excellent scratch resistance. Resists crazing, is a thermal insulator and is insoluble in every known solvent. Can be sawed, drilled, bored and machined.



AMERICAN ENGINEER April, 1956
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 10 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State .....



Dr. W. Dexter Bellamy, Ph.D., Cornell University (1945), joined the General Electric Research Laboratory in January, 1949. He is a research associate in the *Biological Studies Section*, specializing in the investigation of the biochemical effects of radiation and radiation sterilization.

Biological effects of electron bombardment

G. E.'s Dr. W. Dexter Bellamy finds new facts about irradiation

Since 1925, when Dr. William D. Coolidge first began bombarding materials with *high-voltage electrons*, the effects of electron-beam irradiation have been studied by researchers in many branches of science. Dr. W. Dexter Bellamy's work at the General Electric Research Laboratory is aimed at finding new fundamental facts about the *biological* and *chemical* effects of this radiation. A popular prophecy stemming from work in this area is the possibility of radiation-sterilized food that will keep indefinitely without refrigeration. Several problems — for instance, the changes of color and taste of irradiated foods — must be solved before the prophecy is fulfilled. While working on these problems, Dr. Bellamy and his associates are finding that knowledge already gained has other important implications. Their experiments have included the effects of irradiating bacteria, the chemical effects of irradiation on amino acids and protein, and the modification of dextran to produce a blood extender for emergency treatment of shock. As often happens in research, unexpected results have come from a program whose initial goal was simply "to learn more" in a new scientific field.

Progress Is Our Most Important Product

GENERAL ELECTRIC